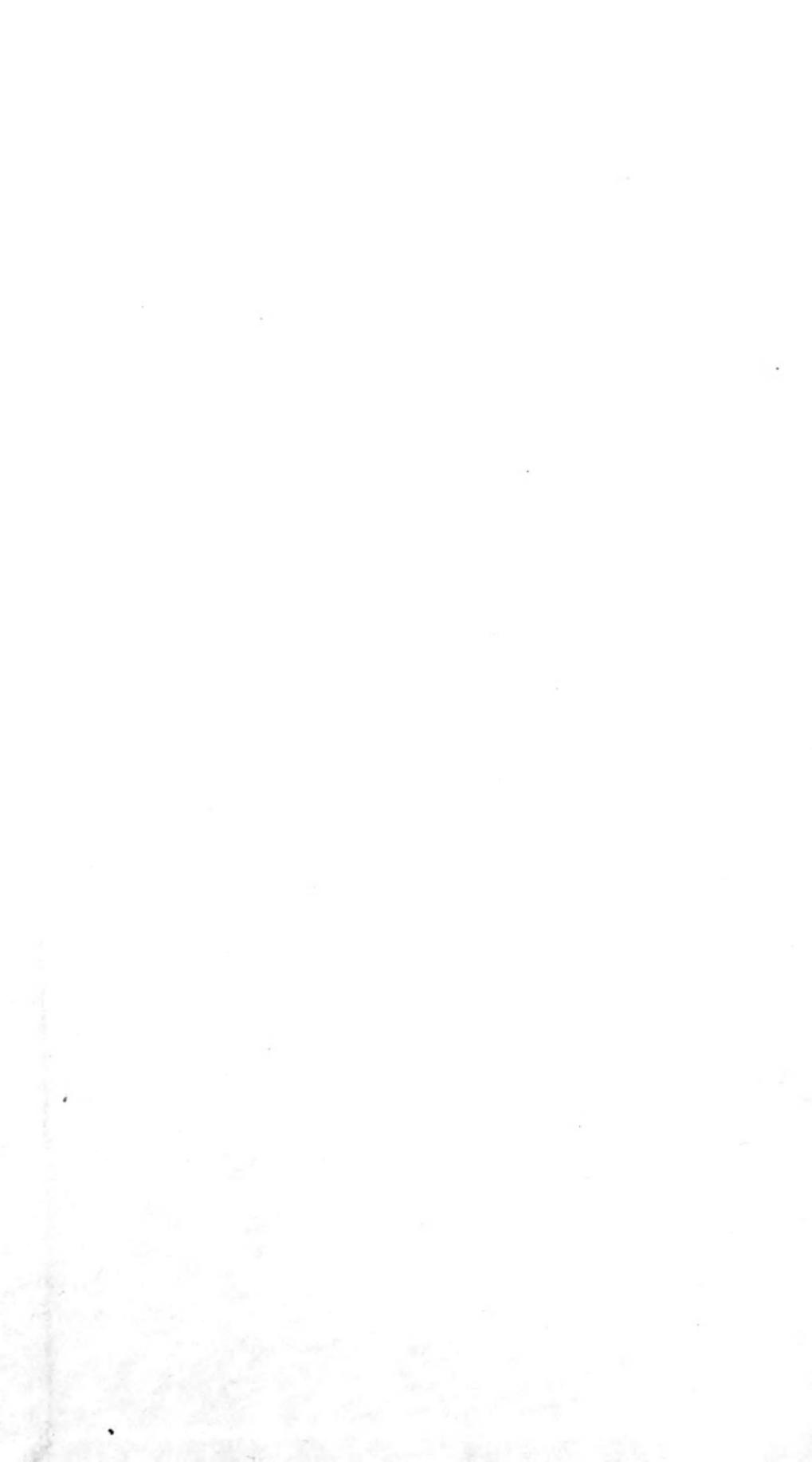


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GYMNASTICS

FOR

YOUTH;

OR A

PRACTICAL GUIDE

TO

HEALTHFUL AND AMUSING EXERCISES

FOR THE USE OF SCHOOLS.

AN ESSAY TOWARD THE NECESSARY IMPROVEMENT

OF

EDUCATION,

CHIEFLY AS IT RELATES TO THE BODY;

FREELY TRANSLATED FROM THE GERMAN

Christian OF
C. G. SALZMANN,

MASTER OF THE ACADEMY AT SCHNEPPENTHAL,
AND AUTHOR OF ELEMENTS OF MORALITY.

ILLUSTRATED WITH COPPER PLATES.

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TO. DR. BEDDOES.

SIR:

AFTER a perusal of your valuable treatise on Consumption, a disorder to which so many in this island fall victims, I feel myself happy in having a particular occasion of testifying my respect for you, in thus presenting to you a book, the object of which is to promote, what you have evidently shown to be of primary importance in protecting persons of all ranks and descriptions against that fatal disease, the extensive use of exercise as a branch of physical education.

Firmly persuaded of the beneficial tendency of exercise for the preservation of health, and acquisition of strength, in early youth, I considered myself as usefully em-

ployed in presenting to my countrymen this treatise, written by a man of understanding and experience; with which, however, I have ventured to take some few liberties, partly to render it more english, partly to adapt it more to the use of boys themselves, at the same time that I have endeavoured to increase it's practical utility by occasional condensation, alteration, or addition.

It is with much satisfaction, therefore, I perceive the value of this essay on Gymnastics heightened by your inculcating the necessity of a change in the physical education of children, and that change which is here proposed, as the effectual means of guarding against a disorder, the frequency of which in this country is well known, though it was left for you to exhibit the fatal scourge with it's proper accompaniments of horrour.

I trust

I trust, sir, you will pardon the liberty I have taken, in thus availing myself of an additional motive for inculcating what I conceive would be of no small benefit to our immediate offspring and their future descendants, and of avowing the sentiments I have long entertained for one, whose enlightened zeal has been so much exerted in the general cause of humanity.

I am, SIR,

with much respect,

your very humble servant,

THE TRANSLATOR.

London, Dec. 24, 1799.

•THE PRACTICAL

P R E F A C E.

A SOUND mind in a strong and healthy body has been for ages the grand object of education. How is it then, that we commonly forget the improvement of the body, though we are fully convinced, that neither wealth nor title, neither learning nor worth, can protect the feeble, the unhealthy, and the infirm, from the lamentable effects of their condition? Should you have nothing to bequeath your child, should you bestow on his mind but a narrow education, still he will bless you, if you form his body to health, strength, and activity, whether he earn his simple meal, sweetened by labour, at the plough or the anvil, with the adze or with the hatchet. On the contrary, while you cultivate his understanding to the highest pitch, if you neglect the health and strength of his body, could you leave him the treasures of a Crœsus, the debilitated, suffering, wretched, helpless creature would curse the education he had re-

ceived, amid all the splendour of reputation, the glare of honours, and even the incense of a throne. Learning and refinement are to health and bodily perfection what luxuries are to necessaries. Is not then our education depraved, when it aims at a luxury, and neglects our greatest and most essential want ? This thought is the foundation of my work : may it not only be laid to heart, but have a practical effect on education in general !

I am aware, that a genuine theory of gymnastics should be constructed on physiological principles, and the practice of each exercise be regulated by the physical qualities of each individual : but such perfection is not to be expected in the following work, built solely on the genuine experience of eight years practice, which has convinced me, that gymnastics are necessary to education, and that, as they are here inculcated, they are not merely innocent, but extremely beneficial, both to the bodies and minds of youth. Occasionally I have felt a little regret, that my book should want the perfection of which

I have

I have spoken, and be the result of practice alone : but the most perfect theoretical performance is of little use, if it be not adapted to place and circumstances, and such must in fact be the case with a pure physiological system of gymnastics. Suppose the most able physician in Europe to be a teacher of youth, to exercise his pupils under the guidance of the most consummate medical skill, and compose a physiological system of gymnastics ; by whom could it be carried into practice ? Is it not clear, that such only, as possessed equal medical knowledge with himself, could apply it to youth in general, and to every individual in particular ? Such a system, consequently, would be of little use, while most of those, to whom the education of youth is entrusted, are engaged in the study of divinity instead of physic. To require a treatise on gymnastics, therefore, founded on anatomy and physiology, would be inconsistent with our present circumstances. How far the physiological knowledge of the ancient Greeks extended, is not for me to determine : but this at least is certain, that long practice

had convinced them of the advantage and utility of gymnastics to youth, and to the nation at large, before they thought of applying medical theory to the subject.

The two parts here given contain all that I have actually promised, or all that relates to proper gymnastic exercises. I had intended to perform more, and to describe at the same time the best and most beneficial ordinary plays for youth; but from the extent of my performance I judged it most adviseable, to print this volume first; and, if it meet the approbation of the public, a second volume shall speedily follow, in which all such plays, as appear to me beneficial for the exercise and recreation of youth, shall be described.

With a heart thoroughly penetrated with the importance of my subject have I written this essay, and I shall readily avail myself of any remarks on it, which may be communicated to me from a friendly hand.

*Schnepfenthal, near Gotha,
Sept. 25, 1793.*

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GYMNASTICS

FOR

YOUTH.

PART I.

CHAP. I.

WE ARE WEAK, BECAUSE IT NEVER ENTERS INTO OUR THOUGHTS, THAT WE MIGHT BE STRONG, IF WE PLEASED.

IF we have ceased to be as healthy and strong as our ancestors, the fault is wholly in *ourselves*, not in *nature*.

Supposing this to be the case, then it depends upon *ourselves*, to rouse our faculties from their lethargic state, and become again savage pict's !

My good sir, you confound health and bodily strength with rude ferocity. Cannot a man of the most highly cultivated nation approach the son of nature in his physical per-

B

fections,

fections, without imitating his barbarity?—Thus it is I say, that it is altogether our own fault, if we bring not our youth to that degree of bodily strength and sound health, which is possible and advantageous in the established state of society.—To render our misconduct the more apparent, let us draw the following parallel.

The hardy, active wife of the ancient german, from whom we are descended, was frequently delivered in the open field, in the midst of her toil. She bathed her loved offspring in the nearest brook, and wrapped him in cool leaves. Thus the open and serene sky canopied the puerperal bed. Frequently the labour of the field was continued. The dipping and bathing of the infant, on his introduction to the light of day, was probably a test of his sound state, and certainly *hardened* his tender body. The child drew his nourishment from the breast of his mother, not from that of a nurse. Thus strengthened, he lay naked and bare on the cold ground, and gradually learned the use of his limbs. This leaving him in freedom to himself must have had the most beneficial consequences on the suckling: here nothing hindered his first flight movements, which quickly

quickly became more forcible, and soon of greater importance.

The first treatment of children among people in the state of nature at this very day is precisely the same. It is too well known for me to waste the reader's time in copying from travellers: but one thing, observed by many, I must not pass over in silence: persons of deformed growth are very seldom to be seen among them.

The infant grew up to a boy, and already accompanied his father to the chace: riding, hunting, and military exercises, together with the fresh, uncontaminated air, strengthened his faculties, sweetened his slumbers, fostered his growth, employed his mind, steeled his courage, established his resolution, and banished all effeminacy. He bloomed a youth. His sports became serious occupations, which his condition enjoined: and thus the youth was perfected to a strong, healthy, and heroic man.

A simple garment covered his naked body but in part: he was satisfied with the skin of a beast thrown over his shoulders. It was not till late, that the wealthy began to cut their garments, and fashion them somewhat more to the shape of their limbs. A great part of

the body remained exposed to the free access of the bracing air. The head was never covered; unless the skin of some animal's was drawn over it, to terrify the enemy: and the legs, knees, and thighs were a long time left bare.

His diet was simple: consisting chiefly of the flesh of animals, sometimes roasted, sometimes boiled, frequently raw.

The women were educated in a similar mode: early accustomed to the fresh air, half-naked bodies, the bath, manual labour, and agriculture, which was entirely left to them. These were the most natural means of fortifying them against the pains and perils of childbirth. Equally natural was their moral education: the example of the parents guided the children; oral tradition was the teacher of the little scientific knowledge they had collected.

Free air, therefore, free and abundant movement and labour in it, cold bathing, little incumbrance from clothing, and simple diet, were the means, by which the young german acquired health and strength, agility and firmness of body, resolution, sincerity, courage, and presence of mind.

Let us now take a peep at our present mode of education. I will be faithful, and shun all

exag-

exaggeration; for the copy of itself will be sufficiently striking. Gray Prejudice welcomes the stranger. There she stands in the shape of an old maiden aunt, trembling for fear of witches, and enjoins the process of—*debilitation*. Thus the young citizen of the world no sooner issues from the womb, than he is plunged into the warm bath, and buried in down. He is treated as one at the point of death: how then shall his health escape unimpaired? Hence drugs accompany his mother's milk: his little limbs, so susceptible of injury, are fettered *: frequently are they hurt by the very means taken to preserve them from harm: the whole of his little body, robbed of the cool air, lies immersed in a vapour bath composed of his own exhalations. Who will venture to check this deplorable debilitation of the skin, the muscles, the limbs? who will venture to strengthen the little infant, gradually, but speedily, by bathing in the brook, at the cold spring? Who will allow him his

* This detestable custom is on the decline. In Germany, indeed, scarcely worth mentioning: in England the case is a little different. And may all mothers know it's consequences, and lay them to heart: wherever this custom has declined, the mortality in this period of childhood has proportionably decreased.

liberty, even on a soft mattress only, disengaged from all impediment?—No one *.

The period of carrying the child in arms succeeds. Instead of laying him in a recumbent posture, and leaving him to the free movement of his limbs, under careful attention, he is wrapped up in a cloak, and carried about: instead of allowing him to prepare himself gradually for learning to walk, the nurse chooses rather to proceed methodically, and at last teaches him to walk by ill chosen means †. Does it not appear, as if every

* A few parents excepted; who, guided by more enlightened views, and abler physicians, set prejudice at defiance. I myself have been eye-witness of a female infant, who, a few days after she was born, bore very well cold bathing at a spring, and at the age of six weeks was very lively after it, in the month of October, when ice was already to be seen in the morning.

+ Carrying in arms cannot be wholly avoided, it is true; but it is practised in excess, to the great hindrance of the child's own movement, and is not managed with proper caution. Teaching to walk is in general begun too early, and commonly without *preparatory steps*, which the nature of the child requires. The child, who has hitherto been merely passive, is placed on his feeble feet, without any previous exercise. Even Plato reprobated this manner of proceeding. He would have the legs strong enough, to bear without injury their little burden, before it was imposed upon them.

thing

thing were done, in the first year, to cramp the powers of the child, which would willingly unfold themselves? and can we wonder, that so many are rendered cripples, by the treatment they receive in their infancy?

The infant becomes a boy: he still remains principally under the care of his tender mother; and the parlour is his chief residence, at least in winter. In a short time he is moulded into a little man: the epoch of his being put into breeches * is celebrated as a family festival, and a fur muff and tippet are considered as the most acceptable new-year's gifts. He is muffled up from head to foot; he reposes on a heating feather bed; his diet consists of the complicated dishes, in which adults indulge themselves; prophylactic and cleansing drugs are employed—as the preservatives of his health.

The time is now arrived, when his body, be it ever so delicate, ought to be exercised the greater part of the day in the open air, in heat and cold, in wind and rain, to fortify it against the influence of the weather; to strengthen his limbs by strenuous exertions in

+ I must here refer to aulic counsellor Faust's *Mittel den Geschlechtstrieb der Menschen in Ordnung zu bringen.*

walking, running, jumping, throwing, &c.; and foster in his mind the germes of courage, perseverance, activity, and reflection on the objects of nature. But how few parents consider this as a duty! Nature would willingly be active till the four and twentieth year in improving the *corporal* faculties, as well as the mental: but we counteract her endeavours, and take all the pains we can to confine them to the mind. ‘She is unable successfully to carry on two rapid processes at the same time,’ says Tiffot*: I will add, because the two are placed in opposition to each other. There was once a child in Languedoc, who at six years of age had the bodily stature of a stout man. He is mentioned in the memoirs of the parisian academy of sciences. Here nature had done every thing for the improvement of the body: but what was the state of the mind? It remained in every respect that of a child six years old.—Now when we form *the mind alone*, the body suffers in a similar proportion.—But how few parents are able to bestow due attention on bodily improvement, on account of their occupations! and how few are willing, because in their eyes it is incon-

* On the Health of Men of Letters.

sistent with the refinements of polished life ! Had we public places, under the patronage of the state, in which our youth might acquire firmness of muscle, and manliness of sentiment, by feats of activity, and exertions of strength ; they would be admirable theatres for the more tender children of the town and the village. But such are no where to be found.

The child is now put to his book ; and has no longer time for bodily exercises. He learns his a b c, to spell, to read, and already treads the path of science with spanish gravity, before his sixth birthday cake is put into the oven. Already incessant attention is required ; and this is *deadly* to childhood. A prodigy is to be created, and at length a *fool* is produced *.

Our best teachers have ardently reprobated too early application to learning, but few parents have listened to them.—In a short time he is sent to the grammar school, to learn latin, &c.—This new period of education is perfectly in concord with the preceding : every thing is calculated for the formation of the *mind*, as if we were altogether *without bodies*. And yet we ordinary men, and more eminently those

* Tiffot, as above.

who are most *refined*, are dependent on the body to an incredible degree. Let the iron-hearted stoic, who knows not what pain signifies, and who can reason with the most cool indifference on the conduct of a surgeon removing his leg, the bones of which have just been smashed to pieces, say what he pleases; we common men look upon him as a phenomenon, and are no more—than our bodies will permit. But what power can the body attain, if it be not *exercised*? Were we to keep the f——king twenty years in swaddling clothes, we should have a helpless monster, a babe of twenty, that could neither walk nor stand, and this merely from want of exercise.—But to return.

Our schools, for the most part, pay not the smallest attention to the formation of the body; and this with good reason, for it is no part of their plan. But, *that it is not a part of their plan, is an unpardonable fault*: it is a bad sign, that no one can discover the idea of *bodily improvement* in the compound idea expressed by the word *school*.

Quitting these institutions, let us cast our eyes on the rest of the youthful world. Schooltime is over: the boys have been sitting at least six hours; how is the rest of the day employed? In very different ways.

Some, who are by nature of a lively disposition, endeavour to compensate for this: but then they are too frequently left to themselves. If bodily exercises be their choice, they are frequently such as endanger their health and life. That many young men are crippled, or even lose their lives this way, is of sufficient notoriety *. Besides, the object here is merely to pass away the time, not to exercise the body under careful guidance. Notwithstanding this, such boys will be found always the most alert, unconstrained, courageous, strong, and active.

Others, who feel pleasure in learning, employ themselves on the school exercises given to them; exercises frequently not slight, and occupying considerable time. Thus almost the whole of the remainder of the day is spent in sitting still: how then can the energies of the young body be developed?

A greater number of those whose parents are in easy circumstances waste these hours of liberty in pleasing idleness, amid visiting, amusements at home, public entertainments,

* To how many does bathing prove fatal in summer, and skating in winter! how many receive injuries from fire-arms! I have known boys, to exercise themselves in leaping, jump over a stake, which they had erected perpendicularly by driving one end into the ground.

conversation, silly tales, or dull reading. Many are by nature dull; the palsying indolence of old age has already laid hold of their minds and bodies; they spend the valuable hours, in which the youthful faculties should bud and blossom, in dosing and eating. *Were due exertion made to rouse these from their bodily languor, it is most probable, the mind would be enabled, to emerge from the slough, that overpowers it.*

As the boy rises into a youth, he will retain the bent lie received in his boyish years. Too often before he has reached his seventh year the roses will have vanished from his cheeks. His meat, his drink, his confined way of life, will have faded them: or if he enter the period of youth with health unimpaired, his body will seldom be what it ought at the termination of this period; it will have completed its growth, but it will not be perfected; it will be sufficiently ample, but it will not be *full of energy*: nature has done every thing on her part; he, nothing: and what have the parents done?

People of rank regard nothing but gracefulness of demeanour and health *. No sooner

* Still this health must not be too florid, as a pair of plump rosy cheeks have a rustic appearance. Can it be believed,

has the boy entered his sixth year, than the dancing master appears, to teach him his positions, &c. But there is a great difference between learning to dance, and forming the body; between elegance of carriage, and muscular strength; between the timid spirit of the young beau, and the manly mind of the rising youth. I love dancing: yet I am compelled to avow, that this pedantic measurement of steps on a smooth floor, frequently associated with soft, melting passions, contributes little or nothing, as a bodily exercise, to the attainment of a nobler end; to the attainment of that, which we would call in a single word *manhood*; and is frequently rendered extremely prejudicial to the health of both mind and body, by concomitant circumstances. May it ever be used with caution by the young, as a symbol of mirth and gayety!

Fencing is an exercise of admirable utility in itself: it strengthens the body, and infuses courage; but it is applicable only in later years, and has a connexion too dangerous

believed, that many parents confine their children within doors, lest the wind and the sun should tan their skins? This is particularly the case with the female sex: but delicacy is not languor; and ill health is not necessary to render a woman pleasing.' Emilius.

with

with what is called the point of honour. Much the same may be said of *riding*: suitable as it is to the manly character, we cannot begin with it before the bodily powers are more than half developed. Few parents think of funambulation, for it is generally considered, though on the authority of hearsay chiefly, as a very dangerous exercise; yet it is one of the most pleasing, even for childhood.

We are now arrived at the end of the usual exercises admitted into the fashionable world. Every intelligent person will instantly perceive, that they are next to *nothing*: for nothing remains at bottom but the dance, that can be at all times practised. If many boys of this class had not exercises of their own selection, adapted to their natural gayety; and did not various circumstances occur, in the process of their lives, to assist the body in some sort, and to compensate in many respects, as far as they possibly can, for this effeminate education; our men of fashion would soon be converted into women of fashion; and they would be seen only at their knotting, their drawing, or their piano-fortes. The perpetual female society of sisters, aunts, cousins, nursery maids, and chamber maids, in which the boys of our people of fashion are brought up, infects like the

the dry rot: they soon learn the style of refinement; are startled at the sight of a spider, or any other insect; have spasms, sentiment, and vapours; and accustom themselves to such an over anxious care of their health, as by no means befits a man, who has his proper occupation in the state, and assuredly no time for extraordinary attention to a continually infirm body. The excessive delicacy of the female sex cannot fail of being too easily transmitted to the infant male: to the male who has a natural affection for the sex, and so easily, so willingly moulds himself by it, when moreover his education is calculated to promote this tendency. Rousseau's observation, that,

'When the women become robust, the men will become still more so:' would be equally true in the converse of the proposition. But if we awaken the manly sense of our boys in their early youth, the manly character may be rendered again predominant: *and thus I have thought, no small service might be rendered to the other sex.*

In the present situation of things, teaching, not *education*, being the office of schoolmasters, the class of working people can do nothing for the bodily formation of their children. The exercises we have mentioned are too expensive

pensive for them ; consequently all that relates to corporal improvement before the age of 14 or 16 is left to chance ; and so it must be, as long as nothing is done towards it by the public at large, in it's scholaistic institutions. That there is frequently danger in leaving children to themselves, I have already observed.

The children of the poorest people are set to work, to earn their bread, as soon as they attain the age of 10 or 12 *. Frequently they are forced to perform, under pain of correction, the tasks of adults. This is horrible : yet it is true. The scanty tuition of the mind is hardly a tenth part accomplished, and the body perhaps arrived at half it's growth, when the poor boy is taken from school, and condemned to slavish labour, for the sake of his belly. We spare the young steed ; we break him not too soon to the harness, or the faddle ; but the children of the poor are not spared, they are not exempted from oppressive toil. The whole of the young frame suffers under this burden too early imposed : many, instead of growing up in vigour, are stunted in their growth, acquire some bodily defect, or destroy for ever all the elasticity of their muscles,

* Many much earlier. T.

while their joints stiffen into rigidity. While we have pity on the young colt, shall we close our eyes against the misery, to which our little fellow creatures are exposed? No state should permit this: surely it is possible for a nation to flourish, without thus deliberately injuring so many of its members *.

Many are employed in picking cotton, spinning, reeling, carding wool. In these occupations there is no exercise for the body: they are performed within doors, sitting, and, if long continued, are unquestionably injurious to the health.

Here I shall terminate my short view of ancient and modern education, as far as it relates to the improvement of the corporal faculties. The contrast between them is too

* 'The Premature labour, to which the child of the peasant is impelled, is a real evil to the country. The less numerous families are, and while many children are taken from their paternal roof very young, (or when grown up, to become soldiers) they that remain are obliged to work, and even at laborious occupations, at an age when they should be engaged only in the sports of infancy. They are worn out before they become old, they never acquire all their strength, they attain not their proper growth, and countenances of twenty are seen united with the stature of twelve or thirteen.' Tissot's Advice to the People: Vol. II.

palpable, for it to be in the least necessary, that I should draw a closer parallel: and it appears to me no less superfluous, to continue it to the manner of living after the period of education is finished, by way of showing the difference between the men of the present and of former times. Yet I may be allowed, to make the following remarks. There are two faults in our education and mode of life, which contribute greatly to enfeeble both our youth and those of mature years. As they are well known, I would not mention them; were I not apprehensive, that I might then be suspected of referring all bodily defects to one source, the *want of exercising our youth*. This blind attachment to some favourite notion is but too common with authors: Heinicke once charged all the misery in the world on—spelling. Would to God he had been in the right: how easily then might we have made one funeral pile of our evils and our spelling-books! —This want of bodily exercise, it is true, I consider as a prime cause of debilitation, but our *luxurious tables*, and the *clothing* of our youth, are assuredly powerful auxiliaries. I shall be careful not to enlarge much upon these: for few men have sufficient philosophy, to deny themselves what pleases their palates, and

and is within their reach, in obedience to reason and argument. Much indeed may be expected from the good maxim in education; which is daily becoming more general, of restraining youth from luxurious eating and drinking; though not every thing, for as they grow up, they are admitted to the privileges of adults. A great deal, however, is gained by this restraint: for most of the infirm have had their health destroyed at an early period; and temperance in the years of juvenility makes ample returns in those that follow. Compared with what is strictly requisite, the usual degree of restraint is far from sufficient, even if continued throughout life; and we shall never reap all the benefits, that may be expected from temperance, till our diet is conformable to that of the man of nature. This is a requisition, however, which I must not venture to make: not merely because the wisest parents would be incapable of debarring their children from all kinds of soup, and hot and mixed dishes, but because it would favour too much of an Utopian scheme. To the *hungry* in health I believe *every thing* is wholesome, while *temperance* presides at the table. But let us attend to what a wise physician among the ancients says of the necessity

of caution with regard to the diet of youth, and the possibility of destroying the noblest faculties of the mind by means of gluttony.

‘ Let those, who cannot persuade themselves, that diet is capable of rendering people temperate, dissolute, unchaste, sober, enterprising, fearful, gentle, modest, or morose, come to me, and I will instruct them what they shall eat and drink. They will find, that they have much greater capacity for wisdom, and much more ability to improve the faculties of their minds, when I have strengthened their penetration, and memory, and rendered them more diligent and sagacious by these means *.’

Thanks to the improved spirit of our education, well-powdered hair, and stiff Sunday clothes, are banished from all intelligent families: but on the whole our youth still appear too early in the less convenient dress of adults, and too early act the part of the man. Far the greater number are so wrapped up in clothes, as if the fresh air, which so eminently strengthens the whole bodily frame, could not be too zealously warded off. People forget, that our inconvenient, or too close garments

do not merely relax the skin and muscles, but induce *indolence* and *dislike* to all corporal exertion. Few parents yet venture to let their children go with open breasts and bare heads. Even many physicians oppose this *: yet I can produce upwards of forty healthy young persons, who have gone winter and summer, by night and by day, in rain and snow, wind and sunshine, open breasted, and with heads uncovered. ‘ Men seem scarcely to have known what to do with their heads, so variously have they cased and covered them; here with turbans, there with caps, and yonder with hats cocked in divers forms. The petit-maitre alone has found the right place for his hat—under his arm.—I am writing no satire, but am perfectly serious, when I ascribe the preservation of part of our powers among people of fashion to this invention †.—Still, however, sifasis has been occasioned by *going bareheaded*.—This is altogether a mistake: it has not been occasioned by going bareheaded,

* According to some essays in the well known periodical publication entitled *Anzeiger*, ‘ Intelligencer,’ the scrofula is produced by going with the neck bare. Have the turks or poles found this to be the case?

† Frank on Medical Police,

but by uncovering the head, so much debilitated by neglecting this natural mode of fortifying it, that it is equally liable to injury from a blast of cold air, or from the heat of a sunbeam.

Five garments would be sufficient for the clothing of our children: shoes, stockings, long breeches of light cloth without linings, shirts reaching a little below the hips, and a light jacket. ‘How fond mothers are like to receive this doctrine, is not hard to foresee. What can it be less, than to murder their tender babes, to use them thus *.’ These words of Locke are a caution to me to say no more: otherwise I would go farther; for never shall I forget the affecting sight of two children of princely extraction, who were still more thinly clothed, and who, with great forwardness of mind, were striking examples of a masterly education of the body †.

* Locke on Education, § 7.

† Dr. Walter Vaughan, physician at Rochester, a few years ago wrote an *Essay, philosophical and medical, concerning modern Clothing*, the design of which was nothing less than to prove, that the usual mode of clothing not only injures the natural shape of the body, but occasions inability, disease, and death.

These fragments are sufficient, to enable us to conceive, that with respect to *strength* and *hardiness* of body, we can no longer be ancient germans, and that our departure from the old mode of education must place us far behind our rude forefathers. The infant negro, brought up in our manner by an european fosterfather, even on the banks of the Senegal, would never become that negro, in respect to corporal faculties, which native education would have rendered him. With little trouble he might be made a tender, black fribble, afraid of the water, turning giddy on a little height, to day catching cold, tomorrow sick of the spleen. Nay, the child sprung from the most sound and uncontaminated british blood, transplanted into some modern city, or rather born amid the dust of the loom, would never grow up to an impetuous, hardy warrior, but a still, feeble, thrower of the shuttle.

Yet under these circumstances we complain of the physical degeneration of civilized mankind, of the decline of our ancient heroic nature firm as the hearts of our oaks, and express our pity for posterity, doomed to become still feebler and more miserable. These

complaints are not unfounded—would they were accompanied with equal *precaution*!

What intelligent men penetrate with such facility, that they deem it not worth narrower inspection, is concealed from the many by a curtain, which admits to them but a few gleams of light. They have commonly very obscure perceptions of the ideas *physical*, *nature*, *degeneration*, and the like; and form notions of them altogether erroneous. Hence such expressions as; men are no longer so strong as formerly, they are degenerated, they have lost their ancient vigorous nature; the many will easily take in a false sense; they will not ascribe this to the *way of life* of both parents and children, and to education; but they will be led to throw the blame of the physical decline of our refined race on an imaginary *inactivity of Nature*, who no longer operates, as she once operated. These expressions, according to their conception, clearly refer to operations of nature: and the exaggerated representations, which men are so fond of giving of the ancient Germans, because there is something of the wonderful in them, the accounts of bones of gigantic size dug up out of graves, the great age of men in old times, and other notions of the like stamp, are to them

them proofs of their opinion *. For, they argue, if this high degree of *bodily stature* and durability no longer exist among those people, whose way of life approaches that of our remote forefathers, it cannot be the fault of our *way of life* alone, but principally of *Nature*.

This reasoning has two very pernicious consequences :

1. We shift the blame from the effeminate, dainty, and luxurious way of living of parents, and the effects of the correspondent education of their children, to a certain *inactivity of Nature*, and go on in our old course : we submit to the melancholy necessity, as Nature is not to be compelled, to produce men now equal to our robust progenitors.

* Such opinions met a ready reception even in old times. In Homer, Ajax kills Epicles with a stone, ‘of such a size,’ the poet adds, ‘that a man, as men now are, could scarcely lift it with both hands.’ According to the mythology of Tibet, the first inhabitants of the Earth were of gigantic stature, and lived eighty thousand years: but both the magnitude of men’s bodies, and the duration of their lives, diminished in time, and will in future decrease still more: the horse will then be reduced to the size of the hare, and man will be only two feet high, but he will attain the age of puberty in his fifth month. See Pallas,

Vol. I.

2. We

2. We lose all confidence in our natural dispositions and powers.

What will be the end of this?

From what has been said the friend of man, and educator of youth, may deduce two very necessary precautions :

1. To use the utmost precision in his complaints respecting the degeneracy of mankind, to state clearly the proper notions that are to be entertained respecting it, and then to render them current, particularly among youth.

May I be permitted here, to take a cursory view of the chief ideas, that present themselves on the subject?

Not *Nature* alone, but *life* also, that is, the thousand *casual impressions*, that act upon man, from the time when the first rudiments of the foetus are evolved to the sleep of death, renders man what he is.

The laws of Nature are irrefragable: or must we allow accidental causes the power, to infringe those eternal ordinances, which pertain to the constitution of the universe? If we admit the latter, to what variations will the universe be exposed! to what degrading instability will its fixed course be reduced!

Nature

Nature therefore forms all creatures with the same power, and after the same standard, in the present day, as in ages past ; and we must not ascribe our physical degeneracy in the least to any alteration of her laws, and her energy, but to contingent causes : that is, to a defective developement of the germe, through the fault of our parents, and of circumstances ; to deteriorating education ; to a debilitating way of life ; and sometimes to disadyvantages of climate.

These contingent causes, it is true, can never force Nature to annihilate her laws, and deface the mould she heretofore employed ; but they may prevent the execution of her design in particular cases.

If then the accidental impression do no more than prevent the execution of Nature's design, it can operate merely on the individual, not on the species : it cannot fantastically change a whole race of beings, and play the scene-shifter with organized nature.

Thus all the weakness of the present refined race of men is only individual weakness : and even that we term hereditary, when the weaknesses and defects of parents are entailed upon their children, is nothing but the continued operation of the accidental impression.

Conse-

Consequently, in proportion as these contingent causes, and their operation, are removed, Nature will proceed to fashion men after her original rule.

But the possibility of this removal is taught us by daily experience, which frequently exhibits to us stout and strong children born of little and weak parents: thus showing, *that these accidental causes, and their operation, are very unstable.*

These not unfrequent cases strongly merit the attention of the parent, and the physician. While we abstain from diligent inquiry into their causes; and satisfy ourselves with the vulgar remark, ‘he or she takes after the grandfather, or some one or other,’ as a matter of course; we shall make but little progress in physical education: much less, I may say, than in the education of domestic animals, the breed of which we have often sufficient industry and intelligence to improve throughout whole countries.

2. We must correct the exaggerated ideas given of our ancient forefathers, and reduce them greatly, so as to bring them down to the standard of truth.

To enter at large into this subject would require more ample discussion, than is suited to

to this place: but it may be of some use, to touch upon two leading points, *stature* and *longevity*, in order to show, that the present civilized race of men, if we examine some of those classes that are employed in labours in the open air, still differ little from ancient germans, except in having relinquished the savage state. Such remarks are much more likely, to animate us with strengthened self confidence, than those disheartening representations of the gigantic stature and long lives of our ancestors; than the repining sentiments, with which we view their ponderous armour, as we call it, and two handed swords, which excite our astonishment. Our judgment is too readily warped by partiality, when we compare the courage and strength of those times, with the timidity and feebleness of our half exhausted men of the *more polished* classes, and thence infer the gradual decay of the whole civilized world.

Piso Aquitanus, one of Cæsar's stoutest warriours, came to the camp of the suevi, the most impetuous of all the germanic tribes, who, as appears from the answer they gave to Cæsar's ambassador, thought themselves invincible even by the gods. The blue-eyed heroes gathered round him. ‘I am come,’ said he, ‘leaders

'leaders of the suevi, to be gratified, if you will permit me, with seeing the exercise of your cavalry. Fame reports, that they are irresistible; that your cohorts have the impetuosity of the mountain torrent.' A council was held: doubts were entertained, whether it would be prudent to exhibit before the roman general an art, which had been already employed with success against his nation. His request, however, was granted. The next morning Piso came. The warriours assembled: the exercise began: a sham fight was exhibited: and Piso expressed himself contemptuously of the military skill of the suevi, which had already discomfited the roman cohorts. Roman arts, and native habits, had blinded the eyes of the stranger. They sat down to dinner. No roman dainties were served to debilitate the stomach; but the fermented infusion of barley gave freedom to the tongue. Piso proceeded in his censures: commended the roman warriours, ridiculed the german; boasted like a Thraso; and at length, heated by contradiction, scrupled not to style the suevi a pack of poltroons. A young fiery warriour started up. The sense of insult nerved his arm. He drew his sword from the

scabbard; and, in the very act of drawing it, smote off the head of the roman.

Let this story be told to the advocate of ancient times, the admirer of the great and heroic; he will express his astonishment at the nervous arm of the sueve, which, in the bare unsheathing of a sword, could lay the head of the insulting roman in the dust; his imagination will transport him to the sacred oaks of old, to the assemblies of our gigantic progenitors; he will look with pity on the present world, in which the oaks are no longer venerable, the energies of man exhausted; he will conceive such an act no more possible, unless in the fictitious scenes of a pantomime. Yet let me assure him, that, though the story is true in fact, its garb is assumed: for the experiment was made on an austrian general, by an officer of Frederic II of Prussia, who is still living*.

Pardon this digression, which appeared to me necessary, to expose the partiality, with which the enthusiastic admirer of remote antiquity views the occurrences of the present day.

* The anecdote was related to me by a man of great veracity.

All the powers exhibited in a thousand manufactories, and in a thousand labours, with a continuance, which even the rude and vigorous man of nature could not display, without especial practice, may stare him in the face: yet his fancy will never discover in these, what it admires in the fiery and warlike lives of the ancient germans, which it vivifies with the flames that glow on the altar of freedom. In these useful, difficult, and dangerous occupations, it sees nothing but the miserable toil of the labouring classes, because they are accompanied with deliberation, not with the wild expressions of untamed liberty and courage, and are favoured by civil quiet.—But to return.

Longevity. It will not be amiss, if we pass over the earliest times, to avoid perplexing ourselves with chronological disputes, calling in the aid of Buffon's attractive power of the Earth, or, seduced by a pleasant sally, admitting the antideluvian race of mortals to have sucked in longer life at the more vital breast of youthful, unexhausted Nature. The standard of our lives has not shortened since the days of David: it reaches now to seventy years, I speak of the whole race of europeans; when it is long, it extends to eighty; and, if the

the rule taken from growth be just, it ought not to endure beyond this: so that all the instances related of very aged men, as of Thomas Parr, who did penance for a bastard when he was 104, married a second wife when he was 120, and died at 152, John Rovin, who lived to 172, Peter Zorten, to 185, Camper, who died a few years ago at Neus in his 112th year, and many others whom I could mention, but the truth of all which I will not venture to avouch, are to be considered only as exceptions from the mechanical fundamental rule of our bodily structure.

We find no people upon Earth exceeding us in longevity; but few in hotter climes attain the age of seventy or eighty, and the negro at forty or fifty is an old man. With what right, then, can it be pretended, that the term of our lives is decreased? Our corporal frame increases till the age of twenty, or perhaps twenty four. If we would draw an inference from the analogy of plants and animals, Nature seems to have established it as a law, that the period of growth shall be nearly a third of that of the whole duration: and hence the term of our existence on this planet seems limited to seventy, or perhaps eighty years.

And if this age be attained, upon the whole, by the smaller number of us only, the fault is not in any declension of the natural powers, but, as already in the time of David, in the way of life; that is, in millions of circumstances, which tend to destroy the individual, before the period allotted him by Nature. Some species of *murder* in disguise, not *Nature*, is at the bottom. It is the same when half of all who are born die before the age of ten.

These few hints will reconcile us with Buffon. Let us consider the following passage of his Natural History, Vol. IV, on old age and death; but not without respect to the whole race of mankind. ‘When moreover we remark, that the european, the negro, the chineſe, and the american; the savage man, and the civilized, the poor and the rich, the countryman and the citizen; men who in other respects differ so much from each other, are alike in this,’ the duration of life; ‘so that all have the same measure, the same space to run through from the cradle to the grave; that the difference of race, of climate, of food, and of conveniences, makes no alteration in the term of existence: that the men who feed on raw flesh, or dried fish, sago or rice, cassava or roots, live as long as those who

who eat bread, and the various artificial viands that cookery prepares : when all this, I say, is considered, it will but the more conspicuously appear, that the duration of life depends neither on customs, nor manners, nor diet ; that nothing can derange the mechanical laws, with regard to our whole species, which rest on the eternal laws of Nature, and by which the number of our years is determined ; and that they can seldom be altered, but by want or intemperance.'

Stature. *Big* and *little* are relative ideas, which always refer to a standard applicable to the species in general. If we take them from uncommon instances, they will be distorted and inaccurate. Bebe, the thirty three inches high dwarf of king Stanislaus, was *short* : Bernard Gili, the tyrolese giant of ten feet, was *tall*. According to the standard of Bebe we are all giants ; according to that of Gili, dwarfs. Varieties of the species, therefore, must not be taken as standards ; otherwise men would be giants, because the eskimaux, and their little brethren of the north, are of diminutive stature ; or they would be dwarfs, were we to measure them by the nations of giants, of whom travellers tell us. Consequently no dwarf, no giant, no effodiated

bones of elephants, of which giants are so readily framed, must be taken for our standard, but mankind at large. Let us bring together in idea all nations*, and take those in the middle between the two extremes for our standard, I am persuaded all the chimeras of our supposed diminutiveness, and dwarfish degeneracy, will vanish. How, in the name of wonder, could men lose sight of this incontrovertible proposition, and always judge of our stature by the magnitude of the ancient germans and modern patagonians, exaggerated even to fable?

If we traverse the Globe, we shall find in the laplanders, famoiedes, ostiacs, greenlanders, eskimaux, and pefherays, mishapen dwarfs, scarcely exceeding four feet high ; in the mallicolles, little, meagre, ugly creatures, resembling apes ; in the natives of New Holland, New Guinea, New Caledonia, the Charlotte isles, and New Hebrides, little mean-looking children ; the stature of the wide-extended tatarian race is inferiour to ours ; the siamese,

* Objection—‘ this proves nothing ; for the whole human race has gradually become less and less.’—If I mistake not, something like this is said by Buffon. But mummies of three thousand years old evince the contrary.

the malays of Sumatra, the inhabitants of Formosa, the egyptians, the numerous negro nations in Africa, the hottentots, and others, do not equal us in bulk: all the rest, the mungal, the chineſe, and the hindoo, the tonquineſe, the mindaneeſe, the native of Timor, the moor, and the nubian, the va-rious tribes of North America, the brasili-an, the inhabitant of the Marqueſas, Teaukeas, Friendly islands, Easter islands, &c., measure with us, and the other people of Europe, body for body. In short, a very conſiderable portion of the human race, in every climate, on this ſide the equator and the other, in the old world and the new, ranks below us in ſtature; and the much more numerouſe part measures equally with us europeans between five and ſix feet: even the inhabitant of Canada, the Germany of North America, ſtrengthened by climate, not denied ſufficiency of nouriſh-ment, hardened by artleſs education, perfected by hunting and warlike exerciſes, not ex-hauſted by carking care, not born down by oppreſſive labour, is as big—as we are. With what right, then, do men refuse to measure us by the ſtandard Nature has given to the ma-jority of our ſpecies? Why ſhould we take it from a couple of exceptions, mostly too imagi-

nary? For what reason are we to be placed by the side of the astonishing patagonian, and bulky ancient german? Let us, however, look at these for a moment, and see whether the case be so bad, that we must be reckoned degenerate. I have examined the most important testimonies for the magnitude of the patagonians *. We will place the biggest and the least together: the latter, according to Bougainville, is five feet nine inches, the former, according to Wallis, six feet five inches: consequently the mean is six feet one inch.

Now if we reject the reveries of abbe Pernetty; and follow these authorities, it is evident, that the patagonians, whom Pigafetta stretched to the height of twelve feet, and who shrank under his followers, Schouten, Frezier, Byron, and Wallis, to eleven, ten, eight, and six,

* They are as follows, reduced to english measure:

		feet inches	feet inches
Wallis found most of them from		5 10	to 6 0
a few	-	6	5
Bougainville found the least, from		5 9	to 5 10
a few,	-	6 2	- 6 4
none above		6	4
Giraudais	at least	6	0
Duclos Guyot	at least	6	0
Carterett	most of them	6 4	0 5 10

are

are at length reduced to the common standard of men: so that Pigafetta's giants belong as much to the regions of fable, as Commerson's nation of long-armed dwarfs, the quimoles of Madagascar. That the height of six feet one inch is not at all uncommon, scarcely needs be remarked. Besides, in taking the mean of the two extremes I act to the disadvantage of my own argument; for but few patagonians were of the highest standard here given; the most, according to Wallis and Bougainville, were of the lowest. Bougainville even adds, because there was nothing striking in their height: 'their extraordinary broad-shouldered bodies, the bigness of their heads, and their large limbs, were the reasons why they appeared to us gigantic.' It was not so much their height, therefore, as their square make: for their height is too common among us, to be reckoned exclusively theirs; the middle stature of our modern germans being from five feet eight inches to six feet four, and in states where the tallest men are not picked out for soldiers we find this exceeded.

As we have remained so long without any certain determination of the stature of the patagonians, and so long been fed with fabulous assertions respecting it; nay as even the

assurance of Winter, the english navigator, who declared he saw no patagonians exceeding his own countrymen in height, was insufficient to suppress the falsehood; with what security can we reckon upon the relations of the ancients, who say the wild ox was but a little less than the elephant*? The expressions great, vast, immense, as they occur in Tacitus †, Polyænus ‡, Cæsar §, Herodotus ||, afford no determinate sense, and too evidently bear the marks of exaggeration. Sidonius Apollinaris at length gives a determinate measure ¶, the only one, perhaps, that we have. It probably equals six feet eight inches, but then, was it taken from a *tall* man, or one of the *middle size*? This we do not know: yet, according to all human probability it was not taken from one of the shortest. To this must be added the difficulty of ascertaining the roman measure. Recourse has been had to tombstones of roman architecture: but what

* Cæsar de Bello Gall. VI, 28. ‘ Uri sunt magnitudine paulo infra elephantos.’

† De Moribus Germ. 4.

‡ Lib. VIII.

§ De Bello G. IV, 1.

|| Lib. VI.

¶ Lib. VIII, Epist. 9, ad Lamp., Carm. XII. ad Catullum.

can these avail, till we know from whom the measure was taken?

Let us endeavour to attain more certainty from the graves of our revered progenitors.

A large forest of oaks, extending from Eichstädt to Weissenburg in Nordgau, the remains of an ancient sacred wood, where druids veiled their religious doctrines in enigmatic verse, as once the clerical spirit shrowded the simplest precepts of religion in the dusty shell of mysticism, guards the bones of Germans within its bosom *. They lie in large graves; the dryness of the ground has prevented them from rotting, at least ever since the sixth century; and consequently they are of sufficient age, to be adduced here in support of my argument. If we find these to contain bones of gigantic size, I will give up the point; if skeletons of our own stature, let us not be misled by Sidonius. Now in them earthen vessels, knives, spear-heads, sword-guards bracelets, rings for the legs, and bits of bridles, are found lying among and upon fragments of bones and entire skeletons. 'Scarcely was the earth dug to the depth of two feet, when a tolerably perfect skeleton

* They were not always burned. Hummel's *Deutsche Alterthum*. 'German Antiquities,' Chap. XIX, § 2, 3:

was discovered, with the face downward, and the head toward the south. I afterwards saw the head, some of the cylindrical bones of the arms and legs, and the bones of the pelvis. I have to regret, that I did not measure their length: *but they do not appear to have been particularly large*, some people having measured them by their own.' About four feet deeper was found a skeleton, lying on the back, with rings on the legs and arms. 'I have in my possession the skull and upper jaw of the head, which was partly decayed. They appear to have belonged to a large skeleton *, yet not old. Had the whole length from the skull to the feet been measured, we should have had a certain measure of an ancient german.' No measure, it is true, is here given: but it is evident, that the writer of this passage, Mr. Pickel, wished to persuade himself of the bigness of the ancients. Assuredly, if he had met with any bones of unusual magnitude, he would not have passed them over in silence. My explanation added to the above passage may excite a sneer; but it is obvious, that *large* cannot be employed by way of antithesis to *old*. Let us, however, seek some

* From the context this must mean an adult. Author.
other

other indications, that may lead to an idea of the stature of this body. On each arm were two bracelets, from the measure of which the size of the living arm may be inferred. Now these measured in their greater diameter two inches two lines and a half; in their smaller diameter, one inch seven lines. Farther, on each leg, between the knee and the calf, were six hollow rings of three inches three lines and a half in diameter. Now let a man measure his own legs, and if they will not fill such rings, they are certainly *very slender*. As I would avoid taking any advantage, I will not omit the largest bracelet found in these graves: it's greater diameter was two inches, five lines and a half; it's less, two inches one line and a half. The arm that wore this was big; but certainly whole troops of men are still to be found, whose arms would fill it*.

I do not mean to infer, that no taller and bigger men were to be seen among our ancestors, than those to whom these remains once belonged: yet they are evidences sufficient to

* The antiquarian information I have here quoted is taken from Mr. Ing. Pickel's *Beschreibung verschiedener Alterthuemer, &c.* 'Description of various Antiquities, found in ancient german Graves near Eichstädt, with Plates:' Nuremberg, 1789.

prove, in what way the roman measure above mentioned, and the expressions of ancient authors, are to be understood: they show clearly, that, as with us, all the germans were not of that gigantic stature, at which the roman soldiers trembled. Warlike enterprizes conducted with success against a savage nation of giants heightened the honour of the roman triumphs; and defeats from such people reflected less disgrace on their arms: these military maxims, united with the love of the marvellous, converted the germans, in the pages of ancient authors, into sons of Anak; and the nations of Germany were viewed through this political perspective glass, in the same manner as the patagonians were for a long time beheld by us through that of the spaniards. I am ready, however, to admit the ancient germans to have been far more stout and robust than the romans were, or than we are; but I cannot persuade myself, that, in comparison with them, we are but dwarfs. When any thing is not small, but of considerable size, a little addition is sufficient, to convert it into the extraordinary: and to this men are always prone.

With respect to bodily stature, I have still to notice another absurd proof, usually adduced

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in support of the bigness of our ancestors. This is the ponderous armour, on which men stare with astonishment, as completely demonstrating the dwarfish debility of their contemporaries, and the gigantic strength of the men of old times.

Now, if we look for a demonstration in the *size* of this armour, we shall find, as is evident to the eyes, that there is nothing extraordinary in this: ninety nine in the hundred of the men of the present day would fill it as well as the soldiers of the ancient fortresses. The aid of plausibility, therefore, is called in; and flaming twoedged swords of six feet long are contrasted with our short hangers. The former, to be sure, can fit only the thigh and the hand of a giant: but then their proportion to the other pieces of armour before our eyes is overlooked. A little inconsistency is easily veiled in admiration of the uncommon. Suspend them in a shoulder belt, and let the warriour wield them with both hands, as was actually the case, the inconsistency and the wonder will vanish together. Probably, then, the proof lies in the *weight*. But most of this armour is formed of plate-iron, consequently cannot be very ponderous. It covered the less valued limbs of common soldiers,

soldiers, as even now it does those of the watchmen of several universities. Other suits, distinguished by their gilding and polish, are of considerable weight, being made of hammered iron. Swords have been found weighing seventeen pounds; helmets of fifteen. Could the soldier of our days fight thus armed? Certainly not; any more than he could tight-laced in whalebone stays. Not that he wants *strength*, but *practice*. An invalide, who used to show to strangers an ancient armoury belonging to the prince of Waldeck, could exercise so equipped with great ease. What, indeed, with sufficient practice, could prevent an animal machine, capable, according to the experiments of Desaguliers, of supporting a weight of 2000 pounds, from doing this? Were the wonderers at this armour to consider, that time has yet covered it with but a slight coat of rust, would not the degeneracy and diminution of our race in so *short a period* appear the greater miracle?

I might here notice another grand argument, namely, the *fecundity* of our species: but to what purpose? Every body knows the annual increase of our births; and it is acknowledged, that, if the more refined classes have fewer children, they have still more than

the savage in the state of nature. The natives of North-America to whom want is a stranger, as the iroquois and delawares, have seldom six children from one marriage: the women of Greenland and Labrador have scarcely ever more than three, or four: the pescerays have commonly but two, or three: and the most fruitful couples of New Zealand cannot boast above three, or four children*.

Among us, families of ten or fifteen children are not very extraordinary in any class; and twenty four, or twenty five, the offspring of a single marriage, have occurred. If particular instances be adduced from the ancient world, as of the eighty eight children of Rehoboam, and the 115 sons of Xerxes; we can retort with examples, which, in the present state of things, say much more. In 1772, there was alive, in London, a man of 100 years old, who was the father of thirty seven sons and nine daughters by eight successive wives. In all cases the state of moderate civilization is most favourable to increase.

Thus I shall terminate my remarks on the ancient man of nature, and the present man

* Loskiel's History of the Mission of the United Brethren among the Indians.

of society in the more active classes. If this be little or nothing inferior to his ancestors in the points abovementioned *, no class can impute it's physical degeneracy to a gradual decline of the powers of nature, but must seek for the cause in an unnatural education and way of life ; and all apprehensions of the impossibility of a regeneration of mankind, with regard to the corporal faculties, must vanish. Hence we shall contemplate our progenitors with more tranquillity. We shall discern in them impetuous sons of Nature ; exceeding us from practice in bodily strength, but in other respects men like ourselves. We shall exhibit their picture to our children : they will admire

* ' In the labouring classes of mankind, where there is no deficiency of nourishment, and extreme poverty does not too soon impose immoderate toil on youth, scarcely any declension is to be observed.' Frank's Medicin. Policey, Vol. I, p. 89. If, indeed, these labouring classes do not fully equal our remotest progenitors in these points, it is entirely owing to the management of their children in their earliest years, want of sound nourishment, and immoderate, oppressive toil : we have in them the fellows of the towtows of Otaheitee, who perform all the laborious tasks, are fed with the poorest diet, and look on while the earees feast on swine's flesh. Careless gayety, found youth, hearty food, and due exercise, in a temperate climate, are requisite to the complete developement of the human frame.

the courage, the strength, the hardiness of the ancient *germans*: they will ask, why do not we resemble them? We shall answer, Nature produced us, as well as she did them: she does not form us of *inferior* mould: her laws are *eternal*. But if force can bend the straight-made man to a cripple, and render the healthy infirm; why should not native strength be enfeebled by effeminacy, and the *nobly born* by Nature be degraded from his worth by perverse treatment? Nature plants the germs of strength, longevity, courage, and firmness, in *us*, no less than she did in our ancestors. Not to cultivate them, is, in effect, forcible suppression: to cultivate, is to *exercise* them. In bestowing on us our faculties, Nature has left the improvement of them by exercise to ourselves, as a preservative against ennui. *Exercise*, therefore, is not Nature's office, but ours. Our standard cannot be the rudeness of *savages*, and indeed ought not, but *hardiness and strength of body, courage, and manliness, combined with the cultivation of the head and heart*. That would require our ancient forests, with their wild oxen, rude ignorance, the barbarian law of force, and an uncivilized wandering life, without the graces or the muses: *this*, nothing but what is within our

reach, and what will completely harmonize with the improvement of the mind; *the development and improvement of our corporal faculties, manly aversion to effeminate softness.*

Education can do *much* and *nothing*: it cannot create a single germe, but it can develope or stifle those that exist. Let us receive with gratitude the talents Nature yet bestows on our corporal machine: let us not again become savage germans; but, while we confess our education and way of living has reduced us somewhat too far below them, let us be conscious, that we can still mount up nearer to them, whenever we please.

CHAP. II.

CONSEQUENCES OF THE ORDINARY MODE OF EDUCATION, PARTICULARLY THE NEGLECT OF BODILY IMPROVEMENT.

IN the beginning of the Bible it is said : ‘in the sweat of thy face thou shalt eat bread.’ This the multitude have ever looked upon as a curse: the philosopher alone perceives in it an universal medicine. I might easily mould it to my favourite notion, and quote it as the most ancient injunction of improving the body by gymnastic exercises. The expression, ‘in the sweat,’ clearly implies bodily exertion: but the spirit of hierarchy and indolence has explained it as alluding to mental labour also, probably as a shelter against the reproaches of the labouring classes. All the learned, the great, and the rich, readily approved such an explanation; and accordingly exposed themselves to the scourge of all those evil consequences, which naturally flow from neglect of this truly valuable rule of life.

Propensity to luxurious living united with Indulgence in bodily rest, and from their embraces sprung an army of infirmities. Even

the ancient athenians possessed the fatal art of producing new diseases*. Let physicians decide whether we have not exceeded them in this. Diseases unobservedly grow into fashion, as formerly witches and ghosts: by degrees they are considered as necessary and natural accompaniments of human existence, and to repel them recourse is had to *physic*. Instead of investigating the true ground of this lamentable state, and going to work afresh as far as circumstances would permit, men at length discovered the cause of their infirmities to be their delay of employing the *physician*.

It is time to break off. If we figure to ourselves our unnatural way of living, screwed up to the highest pitch, to become universal but for one century, must we not tremble for the existence of the civilized part of the human species? Happily, however, this universality has never taken place, because it is

* ‘Is it not shameful, to require the aid of physic, not for wounds merely, and casual, transitory diseases, but in consequence of indolent inactivity, and luxurious living? Is it not shameful, that men, resembling bladders filled with wind and water, should have laid the disciples of Esculapius under the necessity of inventing *new* names for diseases, as vapours and catarrh?’ Plato de Republ. Lib. III; Frankfort, 1602; p. 622.

impossible;

impossible; and the class of people labouring in the sweat of their brows has only given to the intellectual world of the learned and the great from time to time strong and lusty recruits, without suffering itself to fall entirely into their way of living: but the class of men of learning and ecclesiastics, to whom the education of youth has been relinquished throughout all Europe, has done irreparable injury, by training the young vigorous shoots to their way of life, within their thickwalled solitary cells. Let some remote stranger, who knows no more of these institutions than Anacharsis the scythian of the gymnasia of the ancients, enter these domes, and he will imagine he is introduced to an assembly of human minds, compelled from their sixth year to abstract themselves from the body, in which they are allowed to remain solely because it is impossible to have them completely separate from it: when he observes the various methods employed to check every voluntary movement, he will naturally conclude, that here the body is of no estimation,

The mischief, that has been done in the course of some centuries by this perverse mode of education, is inconceivable. It has been the grand source of bodily inactivity, volup-

tuous weakness, effeminacy, a multitude of diseases, and in short an innumerable portion of our sufferings. If we infringe human laws, still the consequences of this infringement may be prevented: but if we disobey one of the supreme ordinances of Nature, on which even the durability of our complicated frame depends, we can neither shun, nor diminish it's effects, and our whole system will feel the shock. And surely the ordinance, 'in the sweat of thy face thou shalt eat bread,' is as much a law of Nature, as the addition, that the body shall return to the dust from which it was made. What then shall we say of a mode of education, which forcibly impels us to disobey this law, by rejecting from it's plan the improvements of our body, with the habit of *corporal exertion*, and leaving these important objects to blind chance?

The great, and men of learning by profession, have hitherto been too frequently brought up to have minds stuffed with knowledge in frail bodies, to be helpless creatures in human form. Massy palaces have been erected on sandy foundations; and in a few years the edifice has tumbled down, or become incapable of the service expected from it. Had not intellectual labour been placed to their

their account, as that labour, which Nature, the Bible, and sound sense inculcate; had they been corporally, as well as mentally, improved; men of great learning would have been more healthy and vigorous, of more general talents, of ampler practical knowledge, more happy in their domestic lives, more enterprising, and more attached to their duties as men. ‘The man who is observant of his duty,’ says the worthy Ehlers, ‘must be a man of courage:’ and are such to be found among the weak and infirm? Rousseau’s words; ‘strength of body, and strength of mind; the reason of a sage, and the vigour of an athlete;’ may sound somewhat like exaggeration, on account of the ancient term employed: yet they exhibit the most perfect model of a man; and the highest refinement of the mind, without improvement of the body, can never present any thing more than half a human being.

Moreover, had those, who are not intended for men of learning, who are not destined to intellectual labours alone; not been confined to bare mental exertion till the age of fourteen or sixteen; had not this precious time been consumed on dead languages, useless to them; had it rather been employed chiefly in the

improvement of the body: people of this class would have been far more vigorous than they are. Even the cultivation of the mind, which is made such an exclusive object, suffers when pursued alone, suffers unless physical improvement accompanies it step by step. A thousand examples prove, that the health of the body is thus enfeebled. ‘The force of the understanding increases with the health of the body: when the body labours under disease, the mind is incapacitated for thinking:’ so Democritus observed *. Even mere weariness of body is often sufficient to untune the mind. ‘I know a youth, at Gottingen,’ says Ackermann, ‘who in the evening was afraid of every thing, even of himself; saw spirits; and could never remain alone. After he had slept a few hours, he would have faced Beelzebub himself without fear; so much were the powers of his mind fortified by sleep.’ Corporal strength and dexterity arise only from exercise: without this they sink into lethargic slumber. The strongest arm would grow stiff and powerless, were it confined for years to a sling: and such a sling our physical education resembles. I shall here take a view of *some* of its effects,

* Epist. ad Hippocrat. Fœs. t. 2, p. 1288.

and consequently show by the way how far I believe in *physical degeneration*, and find a great dissimilitude between the former and present race of men. It appears to me, that what follows may be deduced from it.

1. *Want of strength and dexterity, firmness and muscularity of body.*

Few of our young men or youths possess these qualities united. Many are altogether unexercised, and consequently weak and unhandy: some have considerable suppleness of joint, without even moderate strength of body: others display mere inflexible strength; they are strong only in those labours, which they have daily practised; they have grown to their work. Many can discern a man's occupation in the figure of his body: men of sedentary employments appear half sitting even when they walk, and are strikingly distinguishable from those, whose business requires various bodily exertions. Such people are seldom adroit at any thing, in which their own tools, and their own manual arts, are not required: They are easily terrified at every little danger, because they know not how to succour themselves. This is still more true of people of the higher classes, because they are more tenderly brought up, and unused to bodily

bodily exertion. They are commonly weak, fearful, and agitated, when they have any unusual occurrence to surmount, any unwonted movement to perform, as to run, to lift, to leap, to climb, or the like. They bear about them the care of their delicate bodies in the years of manhood, and even of youth: they tremble when they look down from a steep height, turn giddy on a narrow bridge, and lose all command of their senses in a moment of danger. That these weaknesses are not essential to man's nature, but engrafted on it, needs no demonstration. Every one, who has attended to them as they appear in common life, I shall leave to reflect more at large on these observations, which I have purposedly abridged, and to consider the dangers, that ensue from this helplessness and debility. It is to our honour, that so much attention has been paid to many circumstances, liable to prove dangerous to our fellow creatures: instructions for the recovery of the drowned are made public, and rewards are held out for restoring them to life; yet scarcely one man in ten thousand can *swim*; and they who would administer assistance commonly run about the strand with anxious looks, like the hen in the fable, and must first procure a boat,

boat, ere they can afford any succour. Receipts for curing the bites of mad-dogs are advertised, but no one can give *help*. Why do we not bring up our youth so as to have strength enough to dispatch such a wretched animal, or dexterously avoid him? Thousands yearly meet with accidents by falling down stairs, from narrow places, nay on even ground; from restive horses, from carriages, from fire, from firearms, &c.; because they are lumpish, helpless, and liable to turn giddy; because they want power, agility, and address, to help themselves. Place a man who has been accustomed to exercise his faculties, a sailor, for instance, or an active wild american, in the very same danger as a man of letters, or a mechanic, and it is more than probable, that the former would save himself, while the latter would perish.

We cannot all be sailors, we cannot acquire the corporal perfections of the vigorous son of nature: our whole political constitution opposes this, by confining us, even in the years when we are more gay than Nature herself, to the mechanic's workbench, or the student's desk. This, however, should excite us the more to employ the early period of childhood, and the hours of youthful liberty,

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in improving the corporal faculties, and steeling both the bodies and minds of youth.

2. *Bodily weakness and infirmity.*

Throughout all nature want of motion indicates weakness, corruption, inanimation, and death. Trenck, in his damp prison, leaped about like a lion in his fetters of seventy pounds weight, in order to preserve his health: and an illustrious physician observes: ‘I know not which is most necessary to the support of the human frame, *food* or *motion**.’ Why then should frank, healthy, blooming youth be fettered by the chains of a fatal system of education, confined to the house, and sparingly indulged, at the utmost, in the exercise of a walk in fair weather, scarcely sufficient for fine ladies? Why during bad weather, and in winter, should they be kept within doors, and as warm as if they laboured under a fever? It is true, that by many families of eminence this oldwomanish mode of education is discarded; and that Basedow has taught the higher classes of people, to clothe their children more consonantly to health, and to harden them more against summer’s heat and

* Ackermann ueber die Krankheiten der Gelehrten, ‘on the Diseases of the Learned,’ p. 171.

winter's cold, against wind, and rain, and snow: yet on the whole it must be confessed, that little regard has been paid to the maxim inculcated by a hundred authors, indisputably true as it is, that we cannot emancipate the world from the influence of the weather and of climate, so incessantly and dangerously operating on every person of infirm health, and that consequently it behoves us, to inure ourselves to it. We know, indeed, that it is best to inure children to this: but we merely *know* it; and our usual mode of education continues to afford the most effectual means of rendering men dissatisfied with the course of Nature: for how can they be otherwise, when storm, and rain, and frost, expose them to every kind of bodily sufferance? They murmur at the natural changes of the atmosphere, and load them with imprecations, merely because we have neglected to accustom them to these changes. We *know* this: but the many are far from agreed on carrying it into practice; they retain the prejudices of their grandmothers with respect to education, as faithfully as they preserve her antiquated rings and necklace in veneration of her memory. Their maxims of health consist in keeping warm, wrapping up, purging, sweating, bleeding, avoiding

avoiding bad weather, keeping within doors, and the like: thence the multitude of human hygrometers and barometers, that every where appear, and the scarcity of vigorous, hardy men.—Still there are hopes. By degrees, as reading and the examples of enlightened families diffuse light around, this malady will disappear, and with it a crowd of diseases, which our children do not *inherit* from us, but *acquire through the medium of education*, while we too anxiously endeavour to guard against them. ‘To avoid exposing them to a few natural evils, you create evils, which Nature never gave*.’

Let our physicians decide on the luxurious art of making ourselves sick and infirm; it is not my business here to discuss it; I have only to add the following general observations.

It is not difficult to conceive, that the artificial and complicated diet, with which the tables of the great are profusely covered, is by no means suited to the little exercise taken both by the young and old, and the too early exertion of the mental faculties. The indigestion hence arising; the depraved juices, which no healthy organization of the skin, fortified by

* Rousseau's Emilius.

frequent

frequent exposition to the air, eliminates ; the gradual relaxation of the whole body, which by degrees becomes a stranger to the balsamic influence of the atmosphere ; are all to be repaired by effeminate care and nursing, by drugs and anxious attention to regimen, by animal magnetism, and the like. But is this possible ? For the poor invalides, who have thus injured their frame, there is but *one* remedy, but *one* mode of deliverance from these and other corporal sufferings, and that is *well-conducted and persevering exercise of the body in the open air, and gradually fortifying the enfeebled system.* Solid and unequivocal experience have so repeatedly convinced me of this, that I would engage to restore any child, or any one in early youth, whose health was thus injured.

This evil is generally prevalent in the families of mechanics also, though in a somewhat less degree : I call it the *disease of education*, and if almost half of those, who are born on this Globe, die before the age of ten *, I am

* According to Sueßmilch, of 1000 born 418 die within the first ten years : in many places, 460. See P. G. Hensler's *Beytrag zur Geschichte der Lebens, &c. Materials for the History of Life, and the Increase of Mankind in the Country,* p. 35.

fully

fully convinced half the number must be charged to it's account. As I am no physician, I shall say nothing of spasms, with other newfangled nervous diseases, and so forth, unknown to men brought up more hardily and more suitably to our nature; but I may be permitted to quote what two physicians have said. ‘Nervous diseases are far more common and diversified than they were sixty years ago: this is a truth universally confessed; every one admits it, laments it, and asks the reason *.’ The author then proceeds to detail it's causes: 1. the much more general love of the sciences, and studying them; and the *incessant application to books* in consequence: 2. much greater use of warm drinks: 3. increase of luxury; and 4. hence augmentation of the passions: 5. taste for a much more heating preparation of food: 6. transmission of parental weakness and effeminacy: 7. the influence of secret diseases.

‘Hypochondriacism, as Zimmermann justly observes in his work on Experience, Part II, Vol. IV, p. 293, constitutes one half of all our chronic diseases; and this, as well as the *nervous disorders*, which are every where in-

* Tiffot on the Health of Men of Letters, p. 196.
creasing,

creasing, is the necessary consequence of *immoderate exertion* of the mental faculties, while our bodies are *enfeebled by indulgence**:

Affiduous occupation of the mind, and continued *rest of body*, will gradually destroy the strongest constitution: and if to these be added luxurious living, sparing enjoyment of the fresh air, insalubrious clothing, and an unobserved want of cleanliness, to which I shall advert when I come to speak of bathing, the two principal causes cannot fail, to operate more speedily and irresistibly. These few words display the grand outlines of our way of life, particularly in the *higher classes*: in short, it continually approaches more and more to the mode of living that prevails among men of letters. Thus the diseases of the study gradually insinuate themselves into the drawing room, and still more easily into the nursery, which is too frequently converted into the student's closet. Allow me here to give a brief view of the consequences of *mental exertion*, accompanied with continual *rest of body*, from Tissot. The instrument of thought is the brain. In the exercise of thinking the delicate fibres of this viscus are in perpetual

* Frank's System of Medical Police.

motion : they are fatigued by it's continuance ; and, as we all know, when urged beyond their force, they suffer an irretrievable dérangement, by which all power of thinking is destroyed. All the nerves of the body originate from the brain : or I may say with more propriety, the fibres of the brain are the first delicate roots of the nerves themselves. The nerves therefore must suffer, when the brain is weakened by excessive labour. Through the medium of the nerves this weakness imparts itself to the whole body, which cannot begin a single function without the aid of the nerves. Accordingly if the operations of these be disordered, the whole economy of the bodily system is disturbed, and particularly of the stomach, which possesses many nerves of great sensibility. This is sufficient to account for the body's being affected by the exercise of the mental faculties. It will not appear surprising, that a professor of rhetoric at Paris felt himself ready to faint whenever he came to a beautiful passage in Homer.

What has been just said, it is true, refers only to long continued and immoderate mental exertion, which is not so universally prevalent : but even slighter employment of the mind, when habitually persevered in for a long time,
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and assisted by the auxiliary causes mentioned above, may produce the same effect on the body, particularly in youth*. If then delicate youths be subjected to mental exertion, at a time when Nature is busied in bringing the body to perfection, the consequences must be doubly injurious: for, on the one hand, Nature is hindered in her endeavours to improve the body; while, on the other, the exercise of the mental faculties operates more forcibly, as, at this age they require more exertion. Baratier was a man of learning in his eighth year; at eighteen he laboured under the infirmities of old age; and at twenty he was dead. Examples of a similar kind, if not equally striking, are every where to be found. The natural vivacity of the child and the boy is altogether unequalled. How brisk the circulation of their blood, unattainable in us unless in a state of fever! How great the vivacity of their unfettered, unclouded spirit, to which no animal mind approaches! Sweet, never to be forgotten life, when pure serenity beams from the eye, when the whole machine

* ‘It must not be supposed, that profound meditation alone is capable of enfeebling the nerves; to bring on an innumerable multitude of nervous disorders, nothing more is necessary, than to fatigue the eye.’ Tissot.

expands in the fullest enjoyment of innocent and truly celestial delight! This enjoyment, alas! is soon lost in the society of the serious muses, and with it the prosperity of the whole frame: ‘this age is designed for corporal exercises, which strengthen the body; and not for study, which enfeebles it, and cramps its growth *.’

A second grand cause is *continued rest of body*. In almost all great cities, and in very many countries, men have gone so far as to deem several natural movements, as walking for instance, indecorous. In Naples it is less disgraceful to steal, than to go on foot; and whoever makes use of his own legs, says Brydone, is taken for a groom. The latter is true even of many great cities in Germany. Men walk from the sofa to the door, and from the door to the sofa; wherever they go besides they are carried. What can be expected, says Frank, from such folly? Must not they who are ashamed to appear as men soon degenerate into women; and women into helpless dolls? This indeed relates only to the great; but those of sedentary occupations incur nearly the same danger. Necessity, it is true, exculpates these to a certain degree: but neither

* Tiffot.

can make this a plea for the *disuse of all bodily exertion*, while they spend their leisure hours at the card-table, or in reading, thus continuing indolently at rest during the time when their limbs might be employed in salutary motion. This disuse befits no nation, that would retain the least pretension to manhood ; and one chief object of gymnastic education is, to preserve youth from falling into it. Unquestionably it is one of the chief causes of our physical degeneracy. The principal source of our wellbeing arises from the circulation of our fluids, especially the blood. A brisk circulation animates the whole man : even the phlegmatic is exhilarated, when any thing sets his blood in commotion ; and when this takes place in an immoderate degree, the man is agitated even to delirium. These effects are well known. Continued rest weakens the circulation ; till at length the blood feebly creeps through it's vessels, for the heart is not of itself sufficient to give it due motion. For this muscular movement is likewise requisite. But rest of body relaxes the muscles, diminishes the vital heat, checks perspiration, injures digestion, sickens the whole frame, and thus numberless diseases are introduced. There is not a single part of the human machine,

which a sedentary mode of life does not debilitate, and the nerves more especially suffer by it. Generally speaking, says Ackermann *, a sedentary life is the source of all those diseases, which physicians term cachectic, the number of which is considerable. Among them are greensickness, jaundice, atrophy, worms, tetter, obstruction of the natural excretions, dropsy, &c. For these exercise is the best remedy. It strengthens the vessels, says Tissot, preserves the fluids in a healthy state, quickens the appetite, facilitates the excretions, invigorates the spirits, and excites pleasing sensations throughout the whole nervous system.

I am far from being one of those, who wish with blind enthusiasm to see civilized man converted into a wild animal, seeking health upon all fours in Nature's bosom : I know, that the savage has his diseases ; and I believe, that civilized man must be more capable of avoiding them, as he possesses *more knowledge* to shun their causes. Why then has he more ? In fact, it is not civilization, but it's abuse, that sinks us in this respect below the savage. Would we wish our posterity to be robust, muscular, and manly, let us first introduce

* On the Diseases of the Learned.

these desirable qualities into our education, nature will evidently prosper our endeavours, and our minds feel the benefit.

‘ Corpus enim male si valeat, parere nequibit
Præceptis animi, magna & præclara jubentis *.’
Marcell. Paligen. Lib. 10.

3. *Inactivity.* Let us diminish sensual susceptibility, desirous only of pleasurable impressions, and endeavour to give more force to the body and to the mind. Indolence is the consequence of weakness and voluptuousness. A contented mind, in a strong body steeled by education, loves labour, and to be active. We have to contend with many passions, the grounds of which lie wholly in our corporal disability. That *phlegmatic indolence*, which cannot bear to stoop to pick up a handkerchief, or to undergo the intolerable exertion of a little walk to serve a fellow-creature; which converts men into mere babblers without the power of action; flourishes best in the bosom of *effeminate enervating education*, the plan of which has been sketched by luxury and refinement. Its melancholy effects are pal-

* ‘ For, if the body labour under ill-health, it will be incapable of obeying the mind, ordering what is great and noble.’

pable throughout Europe from Wardhuus to Gibraltar. Essentially we are active as Nature, from whose bosom we proceeded, and of whom we are a part. The inextinguishable flame within us was kindled from that, which is all life and activity. It is innate in us. The young energies of the suckling strive to display themselves, and our third word is to enjoin the child rest. To scream, to cry, to crawl, to run, to leap, are the circumstances in which he finds *satisfaction*: and we should leave him to pursue his own course, as far as decorum will admit, for time and nature will convert this infantile wildness into manly, indefatigable activity. What then becomes of this natural activity in multitudes, in their riper years? We behold them sunk in indolence: has *Nature* resumed from them the gift she once bestowed? No: not *Nature*, but our unnatural guidance. We forcibly impose on children the manners and steadiness of maturity, and thus the inactivity of old age appears in the season of manhood. Our severity and incessant chiding still the infantile propensity to cry; and thus we gradually suppress all desire of displaying and exerting the corporal faculties, which we evidently ought to promote; we confine all labour to the mind,

mind, and by this, by improper diet, and by treating him as if sick, we weaken the activity of the future man. If his mind be not immediately affected, it will infallibly suffer by this conduct. The phlegmatic body creeps at its commands, and seldom obeys them, if they be not perfectly agreeable to it.

'The weaker the body, the more it commands: the stronger it is, the more it obeys. The body must possess vigour to be obedient to the mind: a good servant should be robust*.'

But without repeated exertion it will soon become weak, and vegetate in a state of insubordination. Here we are at the fountain of the worst of diseases, *idleness*, and its companion, *ennui*. At this point I shall stop: otherwise I must play the spy over the gaming-table, at which Avarice, Scandal, and Despair, so frequently seat themselves; domestic quarrels, from the cottage to the palace; complaints for want of bread; and the sighs of Indolence, when compelled to labour: I must ask many impostors, why they do not perform what they promise; many searchers after the philosopher's stone, why they do not rather

follow the plough. How often shall we find, that effeminacy, and the habit of bodily inaction, are at the bottom of all these!

If this be so, a *melancholy* truth ensues from what has been said, namely, that our moral precepts, and our social laws, are of no avail in thousands of cases, because we educate multitudes in such a manner, that they are more or less *incapacitated* for obeying them. The charge is *severe*; yet let it be investigated: I have not advanced it, but on conviction. May it incite parents and teachers of youth, to lay the sad consequences of an effeminate education, so extremely reprehensible with regard to the corporal faculties, to heart, and to attend more to the bodily improvement of youth.

May I be indulged here in a short digression, that I may not pass over certain lamentable errors, which evidently take their origin from an effeminate mode of education, and consequent inactivity. I speak of the errors of an instinct, to which unusual attention has been excited in modern days. Hence, if I mistake not, we trace them to their source. As we expect the juices of the wellnourished and tenderly fostered hothouse plant will be earlier converted into fruit; we have every reason

reason to apprehend, the manifestation of this instinct in the subjects of our effeminate and luxurious education will be accelerated. The law, to which this instinct is subjected, remains the same now as it did in the days of Abraham, with regard to every one who is led by Nature: but if we break loose from her hand, the bodily and mental constitution of the individual, as moulded by our art, takes it's place, and produces at an early period, as experience shows, what Nature would have longer deferred. What cannot the perpetual enjoyment of food to satiety, artificially excited appetite, and a total ignorance of the hunger that labour creates, effect in the families of the great? All this was not bestowed on man; he must pay for it by actual disease, or superabundance and corruption of the fluids. Miserable condition! We require but a certain proportion, never a superfluity of nourishment. If we cannot confine ourselves to this proportion, which is particularly difficult in the houses of the great; there is no other method of compensating for our excess but bodily exertion. This concocts the luxuriant juices, and diffuses them throughout the limbs, to repair the exhausted muscles. Hunger and lassitude are the pleasing consequences of sufficient

sufficient bodily exercise: scarcely is the hunger appeased, when lassitude ensues, and with this instinct is stilled, as nothing stimulates it. How delightful is then the sleep of rosycheeked Innocence! This is a grateful idea, for it embraces the infinite beneficial consequences of this state both to the body and to the mind. If what I say be true, parents and masters, what ought you to have more at heart, than a complete physical reform of a mode of education, which has long shown itself to be defective?

If we cease not to bring up our youth in the hothouses of effeminacy and voluptuousness, to leave them wearisome hours in abundance, to point their imagination to voluptuous images, and thus to accelerate the circulation of the superfluous juices, instead of concocting them, all the means hitherto proposed to check the burst of the passions are insufficient.

4. *An improper choice of amusements.* If the object of amusements be to recreate the mind, or the body, or both, after labour performed, they must be useless in themselves, or in their application, when, instead of answering this object, they tend to exhaust the body or mind, as much, or more, than the labour

already

already undergone. Do we act in consonance with reason, then, if, after serious studies, or other sedentary employments, which by degrees cramp the viscera, we recur to novels, cards, and other similar amusements, invented by folly, which exhaust and debilitate anew the tired nerves and relaxed muscles? if we seek recreation in plays, balls, and concerts? if, with the digestive faculty enfeebled, we sit down to the long meal of the festive board? I may leave the reader to pursue these questions; as I have neither time nor desire, to enumerate our usual games and pastimes, and show, that they are for the most part injurious, in themselves, or in their application. If we take but a slight glance at them, it cannot fail to strike us how few are in use, that tend to promote judicious exercise of the body. What an *effeminate* feature is it in the character of a nation, to be continually lolling on cushions in drawing rooms or carriages, and to *play almost wholly with the mind!* Is it not more suitable to it's destination, that we should appoint to this office it's instrument the body, and thus render this body capable of serving it in it's higher duties and occupations?

This is no longer the *ton*. ' Things are now come to such a pitch, that all (bodily) exercise

exercise is banished from genteel houses; and that, as Tiffot says, those various bodily movements, which the ancients considered as duties, have been so neglected within the last two or three generations, that in a few years probably their names will occur only in dictionaries. In every town, *cards*, with which our fathers were but little acquainted, chain all societies, from an appointed hour of the afternoon, to their chairs, in which the greater part of mankind sit fixed as statues till the night is far advanced. Even our taste for music serves but to restrain us the more from air and exercise; and, fond as I am of this celestial enjoyment, I can scarcely blame the eastern nations, for deeming it indecorous in a man of rank to learn music *.

Can we, then, talk of *ton*, when our general improvement and perfection are in question?—And why is it no longer the *ton*? Because our education favours effeminate inaction and sensibility, and even calls in the aid of science to play with the mind; because all its aim is to soften our feelings, and so to unstring us, that we have no desire to seek recreation except in repose and inactivity of

* Frank's Medical Police.

body, and always prefer what flatters our delicate sensibility.

'Over this,' says Frank, 'police should have a watchful eye: this is not the way to render useful citizens of the state, after having performed their labours, apt for fresh exertions for the good of their fellow men.'

Even our children, who are yet too young, and too little departed from nature, to adopt the refinements of fashion, could teach us better. They frisk about the moment the book is closed; and sit not still, like us, preaching of decorum, till impelled by those commands of Nature, which we dare not disobey.

5. *Debilitation of the mind.* This is a copious theme, on which I must check my pen, lest I exhaust my reader's patience. No one doubts the great influence of the body on the mind: the physical treatment of the body, therefore, particularly in childhood and in youth, must tend to determine the character of the man; and indeed affects it more deeply, than is commonly supposed. This is so certain, that it may be brought to the test of experiment. Confine a young creature in a dark dungeon, treat him as a criminal, and deprive him of every youthful enjoyment; what

what a melancholy, gloomy, suspicious, unsocial being will he become! Keep him in religious solitude; let him fast, and pray, and mortify his flesh: he will probably become a pious enthusiast, a visionary, a fanatic. The man, who climbs the mast, unfurls the sail, and guides the helm, is a very different being from him, who is destined to the thimble and the shears. Our ideas of ourselves and the things around us, our way of thinking and acting, too frequently depend on the modifications of our fluids, on the tone of our nerves and our whole frame. To thousands the World appears today serene and bright, tomorrow dismal and gloomy: today they can displace mountains, tomorrow they cannot move a straw. This complete change of scene and action is commonly produced by the state of their bodies alone. If truth and sincerity, firmness of character, unalterable constancy in love, cheerfulness, presence of mind, courage, and true manliness of sentiment, have decreased in modern days, the fault is not in the greater cultivation of the mind; which, it is to be regretted, is but too often the improvement of the imagination, wit, and memory, to the neglect of practical understanding; but commonly in the disregard of physical

physical education, in the want of hardening and exercising our youth. Whence shall the young citizen of the World acquire that great, noble, manly character, which distinguishes itself by firmness in prosperity and in adversity, by courage in danger, by generosity in succour, by patience and exertion in need, by reflection in the business of life; when he is brought up with delicacy, and, taught to rely on the support of others, is conscious of his own helplessness and debility? Whence shall he derive presence of mind in danger, when he has spent his blooming years lolling on a sofa, or sitting on a form? whence cheerfulness, when his nerves are relaxed, and his whole body unbraced by his way of living? whence temperance, when we excite and strengthen his passions by luxury in eating and drinking, by sleep, and inactive repose? whence constancy, sincerity, and truth; when his constitution is weak, and represents the things that surround him now of this hue, anon of that? in a word, what can we expect from the mind, when it's instrument, the body, is not only capable of *executing* little, but even *oppresses* the mind with it's weight?

Destroy the roots of the healthiest plants, their heads will droop and die. Many excel-

lent qualities of the mind have their roots, in fact, in the body: their summits, which adorn the spiritual being, the mind, will wither, if we neglect the soil of these valuable plants, and thus injure their roots.

Far be it from me, to deny the present generation all noble qualities. Can I, who am a member of it, be it's calumniator? But whatever of noble we perceive commonly smacks of national spirit. Here it is blind slavish devotion to a despot, there the madness of liberty; in one place it is the lust of conquest, in another fanatic submission to the clergy; in a third the gentler qualities of compassion, pity, and the sensibility of society polished to the extreme of refinement. Thus the noble takes it's bent from the prevailing opinion, which is usually received as it's standard. For our own parts, do we judge of actions strictly according to the laws of impartial reason? or do we not rather find them perfect, in consequence of the imperfection of the standard we employ? Many of our periodical papers, which make an ostentatious display of noble actions, unquestionably with a laudable view, seem not a little to confirm the latter supposition. But be this as it may, to me it appears evident, that thousands of noble cha-

racters

racters would appear still more noble, and thousands that are equivocal and indifferent would evince themselves honest and worthy, had they not been *crippled* by our effeminate mode of education.

No heroic patriotism, no sacrifices for the common good and the succour of others, no manly courage, no inflexible love of truth, no lofty endeavours at noble actions, can *ordinarily* be expected from the weak and infirm; from persons habituated to luxury from their youth; who are ever thinking on the gratification of their sybaritic wishes, and what they call their wants; whose grand business is solely the acquisition of the means of gratifying them; and whose bodies, sunk in ease and effeminacy, seek to shun every inconvenience by a thousand devious ways. The objects of their exertions are enjoyment, pleasure, their own convenience, ease, and freedom from care: their common lot is to be *slaves* to their passions. ‘All the sensual passions take up their abode in effeminate bodies; and are the more irritable in proportion as they are less capable of being gratified. A feeble body enfeebles the mind *.’

* Rousseau’s *Emilius*.

I cannot here omit particularly noticing a quality of the manly character, which our effeminate education is continually rendering more scarce. This is a certain wise confidence in our own powers; which prevents us from crying out for help, or falling into despair on every trifling occasion; which must be at the bottom of every great or little enterprize; and which is indispensably necessary, to enable us, as men and citizens, to preserve a certain independance. As long as our understanding can rely upon this anchor, our voyage, whatever storms may assail us, will still be sufficiently pleasant, to induce us to persevere; and every opposition will serve only to animate our exertions: but when this is lost, it is time for us to quit the deck, and relinquish the helm of our vessel to the guidance of another.

To enter more particularly into what I have exhibited as the consequences of our effeminate education and mode of life, appears to me superfluous. Besides, I must again notice them, when I come to discriminate the objects of gymnastic exercises. Yet it may not be unpleasing to many readers, to see the points on which we have touched reduced to one general principle. This is:

*The best education leads to the best capacity for supporting the joys and the sorrows of life.**

To support requires *force*: and that this cannot be imbibed from the present spirit of effeminacy, which cockers and softens our feelings, is selfevident. If, therefore, we would approximate the best education, we must gradually abandon this spirit. Not that we must abjure learning and civilization, and with them genuine moral sentiments, to plunge ourselves into the depths of barbarism: but only follow those ancient principles, which lead to form and sustain the manly character by exercise and wellmanaged hardening, instead of curtailing our natural strength and greatness of mind, and melting them down with sensibility.

I shall conclude this chapter with the words of Scemmering: ‘ how many plants are deprived of the greater part of their essential perfection by cultivation! The forced superficial splendour and beauty destroys the transitory flower, and frequently depraves or diminishes the most important end of the blossom,

* ‘ He who is most capable of supporting the good and the evil of this life, is the best educated.’ Emilius.

the power of propagation, together with the energies of the whole plant.'

How frequently do we cultivate the *understanding* to the detriment of all the *active powers* of man!

C H A P. III.

ALL THE MEANS, THAT HAVE HITHERTO BEEN EMPLOYED AGAINST THESE CONSEQUENCES OF EFFEMINACY, ARE INSUFFICIENT.

WHEN prejudices are consolidated by time, repeated efforts are required to destroy them. When privileged by fashion, and the consent of ages; when the taste of a nation approves and supports them; let them be proscribed by the wisest of men, whether his name be Tiffot or Frank, Locke or Rousseau, few will dare arm to attack them. Their country, and their townsmen point the finger at them, and zealously engage as partisans in the cause of their prejudices. Men advance, therefore, but feebly to the charge: they *write*, and leave those, who may think proper, to *act*.

The consequences of our effeminate education briefly noticed in the preceding chapter have long been the rocks, on which the happiness of thousands has split. The more intelligent part of the nation has become aware of them; and the wish to remove them has been expressed with an ardour, from which much may be hoped, as the attempts to improve education are grown far more com-

mon. Not the teachers of youth alone, but the most celebrated physicians, have for some time urged the necessity of a complete reform in the physical department of education: but in the country, in towns, and in all ancient scholastic establishments, time has rendered the prejudice in favour of an effeminate mode of education sacred: in the palaces of the great, and in the apartments of their little imitators, fashion has taken it under protection: at universities, and in the studies of men of letters, learning has united with fashion to erect it an asylum. Hence the exhortations of those great men have remained a dead letter, without being followed in practice; so that a complete reform in physical education must take place, before we can alienate our youth from the spirit of the age, and fashion them to greater manliness and health.

Every thing *purposely* done hitherto, to attain this, therefore, or that has *accidentally* served to render the progress of luxury and effeminacy in our generation less easy, may be reckoned up without difficulty.

Since the appearance of the *modern* mode of education, as it has been called, but which the learned know may be found in Plato and other Greeks; since the promulgation of the principles

principles of Locke, Rousseau, Basedow, and Salzmann *; the night of monastic education, as every one knows, has gradually dispersed. Even princes have taken an active part in it. Many daughters have been produced by the mother school at Dessau; many ancient institutions have been reformed; and private education has assumed a very different aspect. These highly valuable steps deserve all acknowledgment. If they be thoroughly examined, however, it will appear, that they are almost wholly turned to the cultivation of the mind; to better methods of instruction from the a, b, c, to trigonometry, to improvement of the mental faculties, to better moral instruction: but the poor *body* is nearly forgotten. This I must render somewhat more clear.

Our *private education* is improved. Men wish to begin it even before the birth; the treatment of infants is more rational; children are more inured to the open air, and change

* It is to be observed, the name of Salzmann is not in the title page of the original of this work, though there is no doubt of its being written by him: for his name was subjoined to the advertisements in which it was announced, and in the title he calls himself *Gutmuth, Erzieher zu Schnepfenthal*, 'Meanwell, Schoolmaster at Schnepfenthal,' the place where Salzmann keeps a school.

T.

of

of weather; their clothing is much more simple; their diet is more wholesome; even the rendering the body hardy is spoken of as necessary. All this is very true: but, alas! the better principles of education are adopted only in very few enlightened families; and, upon the whole, the physical treatment of children is not a whit better, than it was twenty years ago and upwards.

Here the founder maxims have never once set the old womanish prejudices in fermentation; and our barbarous tenderness still thinks nothing of the fearful fact, that half of all who are born die before the tenth year *.

'Plenty of open air, exercise, and sleep; plain diet, no wine or strong drink, and very little or no physic; not too warm and strait clothing; especially the head and feet kept cold, and the feet often used to cold water and exposed to wet †.'

* The reader will pardon me the repetition of this fact. It is a very striking proof of the assertions, that our physical education, together with our manner of living, is bad; and that our care for the bodily welfare of our fellow-creatures consists mostly in words. I shall here add, from Dr. Black, that, in great cities, half die before the third year.

† Locke on Education, § 30.

These are Locke's excellent rules for the treatment of children : but where is the house, in which you will find them applied *to their full extent*, plenty of sleep alone excepted ?

Many of our private tutors are unacquainted with what pertains to physical education : and all, nearly without exception, are the mere executors of the parents will. They have only to see, that their pupils do not sleep too long, or eat too much ; that occasionally they take what is called exercise, and receive no injury. Adequate *bodily exercises* never enter into consideration. I have already expressed my opinion of riding and dancing, and of the less common fencing and funambulation, in another place. Many parents allow their children to be instructed in mechanical occupations : and this is highly commendable, but is not alone sufficient, to accomplish all that should be expected with regard to forming the body.

If it be true, that the lower classes perpetually imitate the higher, people of fashion may do great good by their example. The courtier educates his children, as far as he can, after the model of the prince ; the nobleman, after that of the courtier ; and so on. All follow those before them, as much as circumstances allow. How great would be the benefit,

benefit, were wisdom always displayed in the higher classes! The man of understanding alone proceeds on his own way, when he observes folly above him. But it is long since the lower classes had much of good to imitate, and the results of their imitation have been, effeminacy and weakness of nerves. Not to be unjust, however, it must be confessed, that modern times afford a better prospect, as a sounder education *begins* here and there to display itself in the descending chain.

The improvements of our *great public schools* deserve much praise: but they are confined to the methods of teaching, new sciences, more regard to health in the construction of the appropriate edifices, and greater economy of expense *. As they are fundamentally seminaries of learning, we cannot with justice require more from them. Others, which ought to be establishments for education in the most comprehensive sense, as the scholars are entirely left to them, do with regard to bodily improvement—*nothing*: a few of them only excepted, and these far from sufficient. They feed their pupils, comb their hair, let them

* The reader must remember, that the author speaks of the schools of Germany. T.

sleep,

sleep, and suffer them to grow effeminate, exactly in the way that has been pursued for ages. I refrain from entering into the particulars of this wretched routine, which has been sufficiently exposed in various publications. The same observations apply to our smaller schools, so that all the means adopted for the advantage of the body in these public institutions are reducible at most to the greater purity of the air in them. Very few schools employ their pupils even in mechanical labours: though it is easy to see, as has been observed, that something more than a notion of mechanic dexterity is requisite to the perfection of the body. What is of far more importance, many excellent schoolmasters instruct their scholars in the mechanism of the human frame, and the means of its preservation: when this is done in boarding schools, if the practice be neglected, while the theory is inculcated, the neglect is so much the more reprehensible.

Of late days some institutions have arisen under the appellation of *schools of industry*, in which the pupils not only receive learning, but are taught some manual occupation. Here it is evident one very melancholy consequence of our effeminate education, *indolence*, of which I spoke in the preceding chapter, is acknowledged,

acknowledged, and an attempt to remedy it made: an attempt, that will not be destitute of success. But if there be *other* consequences beside indolence to avoid, these institutions will be far from sufficient: to accustom youth to earn a living, and to employ their time usefully, is indeed an excellent design; but it would be of still more excellence and importance, to guard them from *all* the evil consequences that arise from neglect of exercising and improving the body, while we habituate them to activity.

This short view is sufficient, to discover the few steps, that have been made toward the physical improvement of education, in private families, and public institutions: almost all the improvements, that have been suggested, lie dormant, properly speaking, in books; a few of them only have been carried into practice in private families, so that they are yet by no means to be considered as forming a part of general education. If we put into the balance with these the retrograde steps made; as the universal introduction of warm drinks; the general rejection of the bath, the use of which was once prevalent in all towns, but has been prohibited in modern schools, though now at length it recommences to be employed as beneficial

neficial and necessary; the far greater refinement of fashion; and the much earlier imposition of the yoke of scientific knowledge, and dexterity in the arts, on the necks of our tender youth: it may be questioned, whether this department of education have gained, or not. Even the adoption of particular principles of a better and harder education into a few families is perhaps of more detriment than advantage: as the maxims of effeminacy, that are suffered to subsist with them, very easily produce a conflict, at the expense of the poor youth, and produce mischiefs, which few experienced preceptors can remedy, and that with difficulty. When this is the case, Prejudice always throws the blame of these mischiefs not on the *inconsistency* of the plan, but on the better principles; and thus the good cause receives more injury than benefit.

I now come to the *accidental* causes, that have principally operated to retard the decline of the corporal strength and health of the present generation.

At the summit of all stands the *natural propensity* of children to play about in the open air, and thus compensate the mischief received in the school. Neither the rod of Orbilius, nor the serious admonitions and stripes

stripes of parents, can so completely restrain the brisker circulation of the youthful blood, with the innate activity and desire of exerting power, as to convert the temperament of childhood into that solemn gravity, which the monastic mode of education required, as a preliminary to entering the courts of learning with due decorum. *Naturam expellas furca tamen usque recurret* is for the most part true; and here it has been of no small utility, as it has preserved numbers of youth more strong, robust, healthy, active, and virtuous, than could be expected from the plan of their education. This has been particularly the case with those of the labouring classes, who, partly from carelessness, partly from being weary of the too constant presence of their children, and from their continual employment, give themselves little or no concern about them when they return from school.

The children of the more polished and idle classes have less liberty, and are commonly confined to the house in the fetters of good breeding. Hence arises, in a great measure, that remarkable difference, in respect to strength, health, and bodily address, observed between the youth of the different classes of people. Indeed, if we attend to collateral circumstances,

circumstances, we are nearly able to discern in a child's face, whether his parents have any court or garden to their house.

The various occupations, that employ the labouring classes in the open air, constitute another powerful cause. In these youth are generally engaged from the age of thirteen or fourteen; and in them they find the means of fortifying their health, exercising their bodily powers, and acquiring more or less dexterity in many respects. It is to be lamented, however, that many are obliged, to perform labours above their strength.—On the other hand, the sons of all of the superior classes are denied these means of improving their health, and in consequence remain more feeble. Such of the young nobility as are destined to a military life, indeed, form a small exception; particularly as many of them are educated somewhat more hardily, either by their parents, or in military academies.—Lastly, leaving all considerations of revenue out of the question, we shall find in the various customs and excises, though considerable industry is exerted to evade them, a powerful dam against the torrent of luxury and effeminacy, which at least prevents the habitations of the poor from being deluged by it. In many countries the

consequences of these may have been of no small importance: for it is obvious, that a labouring man, while his wages remain the same, can less indulge in articles of luxury in proportion as their price is raised.

It appears from what has been said, that the great steps taken in education in modern days, particularly in Germany, have been very partial. The enlargement of the field of knowledge, and the greater demands made on those, who dedicate themselves to the arts and sciences, have rendered it necessary to think of better methods of instruction, and to make considerable alterations in the plans pursued in schools. This was one principal ground of improvement in public and private education. But if this very increase of the objects of instruction augmented the disproportion already existing between scientific and physical education, at the expense of both the mental and corporal faculties, it was so much the more incumbent on men, to think of strengthening the body. In this, however, we have been almost wholly led by the gripping hand of Prejudice: we have ever considered our feebleness and bodily infirmity as the gifts of Nature, our diseases as innate evils, and our vices as the shoots of original sin: instead

of

of deeming them, what they almost always are, the consequences of our corrupt mode of life and education. It is but too true, that we are much more fond of having recourse to the shop of the apothecary, the magnetising quack, or the panaceas of empirics, for preserving our lives, and dispelling disease, than drawing nearer to Nature, or at least suffering our innocent children, whom a similar fate awaits, to draw more near to her, and imbibe health, strength, and longevity, from her breast: it is but too true, that many slaves of luxury, effeminacy, and fashion, consider affected sentimentality as a mark of refined understanding; delicate health, and bodily debility, as indications of a mind highly cultivated; womanish softness, as a token of noble descent, and superior education; and, in short, all these, as no less certain proofs of high birth, than the long nails of the Chinese.

It is but too true, that many men of letters cannot conceive of solid learning, unless built on the ruin of the body; that even enlightened parents and tutors think they do *enough* for the physical department of education, and follow completely the modern mode of education, as it is called, and the directions of the wisest physicians, if the child be not

100 MEANS HITHERTO ADOPTED, &c.

fucked by a stranger, eat no pap, be neither swathed, rocked, put into leading-strings, injured by stays, nor crammed with food; if he breathe pure air, get the small pox by inoculation, drink water, wear short hair, be accustomed to moderation in eating, once now and then take a little walk, and be exempted from swallowing preservative medicines, and from the application of the rod.

The erroneousness of these opinions is sufficiently obvious. The good included in the last I prize: but a child may be brought up very effeminately with cropped hair, under this philanthropical education, as it is usually styled; which assuredly is far from sufficient, to carry a youth up to that degree of bodily perfection, where health is combined with strength and activity, with endurance, courage, and presence of mind, in the true manly character.

CHAP. IV.

GYMNASICS PROPOSED. OBSTACLES.

THE consequences of our education and mode of life displayed in the preceding chapter may be expressed by a single word, *softness*. Let us harden what has become too soft, and firmness, energy, muscularity, health, strength, and activity, will again adorn us in their primitive excellence.

Our physical education, as I have shown, offers no adequate remedy for this disease of the body and mind. We should never think of employing religious and moral precepts and exhortations against bodily weakness; and can we suppose, that they are sufficient to remove that proneness to inactivity, with its long train of consequences, and that softness of the mind, which are usually founded in the state of the body? *Would it not be better, according to the utmost of our ability, so to educate the young citizen of the World physically, that he may be capable of remaining morally good?*

If we *harden* the body more, it will acquire more stability, and firmness of nerve; if we *exercise* it, it will become strong and active; in this state it will invigorate the mind, it

will render it manly, energetic, indefatigable, firm, and courageous; serenity will be diffused over it; it will be active as Nature; it will never experience the poison of ennui.

All this is to be accomplished by educating the body more hardly, and in particular by exercising it. '*Mirum est, ut animus agitatione, motuque corporis excitetur* *.'

Thus, at the end of the polished eighteenth century, I venture to recommend to my contemporaries, what high antiquity, and unmerited neglect, have rendered novel, careless of the reception it may meet from the plodders in the beaten tract. The voices of many nations, of many tutors, of many great physicians, and, what is still more, of found reason, are in its favour; and before these folly and fashion must ultimately bow the head,

It is inconceivable, how, in the long series of ages, during which an acquaintance with ancient Greece and Rome has been cultivated, the excellent principles of physical education pursued in those countries, and of course the accounts of their *gymnastic exercises*, have been read and re-read in every school, and

* 'It is wonderful, how much the mind is enlivened by the motion and exercise of the body.' Plin. Secund. Epist. I, 6.

every study, without any thing being introduced from them into the education of the day. But men too frequently read words only, not ideas. The experience of many years has convinced me of the great benefit, that accrues to both mind and body from daily exercise; but we do not want this conviction: it is well known, that our youth are educated too tenderly and inactively, that they sit too much, that they cannot uninterruptedly pursue mental labour, and that in consequence their bodies likewise must be set in action; that, among a thousand families, scarcely fifty can find occupations for their children, when the school-hours are ended; and that, of course, this leisure time is for the most part spent idly, or to no useful end. Even in this respect alone bodily exercises are highly useful, nay *indispensable*. If these be not prepared for children, they will commonly choose such as are dangerous, or inadequate to any valuable purpose, if listless idleness be not their unfortunate lot. But few parents or masters are acquainted with proper exercises: assuredly, therefore, a *practical guide* to such will be a less superfluous work, than the most excellent romance.

Thus then I recommend them, with the most profound conviction of their utility, to *all parents*, who earnestly wish to bring up their children with found minds in found bodies.

To all *private tutors* particularly, who have the welfare of their pupils at heart.

To all *schoolmasters*, who would form the body, as well as the mind, which is so completely inseparable from it.

To the *whole nation*, who well deserve to continue worthy of their robust ancestors, and to support and animate the noble and old-fashioned honesty of their original character by bodily fitness.

To all *worthy princes*, who deem it their supreme duty, to promote the weal of their subjects.

The spirit of pious benevolence in founding ecclesiastical establishments has vanished in great measure with superstition. Worthy men! if you can no longer endure monasteries, bestow your gifts on the youth of your country, found for yourselves a monument like Anaxagoras at Lampasacum; but think not of perpetuating your memory by discourses, which the winds dissipate, while they lull the hearers to sleep. Do as he did. When he lay at the point of death, the magistrates

gistrates of the city came, and asked the celebrated philosopher, if he had any thing to request: ‘ yes,’ said he; ‘ that every year all your youths may be allowed to keep holiday during the month in which I die.’ He did not mean negroes holidays, in which there is less play than work.

Every wit or witling possesses the little art of turning things to ridicule. Let him, Two great nations, after whose example we have hitherto been so prone to form ourselves, give to gymnastic exercises an importance, sufficient to overbalance all the raillery and scorn of the blockhead and the buffoon. These two nations were the *romans* and more particularly the *greeks*.

Excellent people! you have long repos'd in the elysian shades; but the relation between body and mind still subsists; it is *eternal*. Our minds are formed by you; why have we disregarded the precepts you have given us for the preservation and embellishment of the body! With you *gymnastic exercises* constituted the principal part of youthful education: their objects were hardiness, strength, and dexterity of body, elegance of form, courage, presence of mind in danger, and patriotism founded thereon. The appointment of public teachers

teachers for this purpose paid by the state; the public edifices erected for it in every city of Greece, some of them of vast extent, and singular magnificence; sufficiently prove the high estimation, in which gymnastics were held. In these edifices appeared orators and philosophers for the interchange of ideas; youths and men, to gain instruction from them, and to exercise their bodies; athletæ, to exhibit their prowess; the weak and infirm, to strengthen themselves by exercise; young and old, rich and poor, of all ranks and conditions, to see the exercises of the place, to join in them, and to amuse themselves. The public solemnization of these exercises, united with those of the mind, at the olympian, isthmian, pythian, and nemean games, which were far from mere sport, sanctified the lofty sentiments of these people, and even their religion. The confluence of people to these festivities exceeds our conception: nothing like it exists in any modern nation; no such joyful assemblage of the members of a state any longer takes place. Important national events, public festivals, and even the interment of deserving patriots, were honoured likewise with gymnastic games.

The

The remotest parts of Greece, poured forth their multitudes, repairing by land and sea to the finest province of the Peloponnesus, the fertile fields of Elis. From Sicily, Italy, Asia Minor, and particularly from the great peninsula, they flowed to Olympia, to be present at the sacred games, formerly instituted by Hercules, and revived, after a long interval, by Lycurgus and Iphitus. Here kings frequently contended with citizens for *crowns*, with which were interwoven the profound veneration of their compatriots, and immortal fame, as well as the liberties of their country and of their children, the *useful* employment of national festivals, the welfare of individual families, and every thing good and lovely that Greece could request from her divinities.

A man need be no enthusiast, to have his heart swell with emotion, when he perceives a crown of pine or olive rouse the youth of a whole nation from the soft indolence, which their climate was adapted to encourage, emulously to contend for the acquisition of strength of body and manliness of mind, instead of sinking into effeminate relaxation. If the question, whether a government ought to interfere in education, deserve an affirmative answer in no other respect, it certainly does at least

least in regard to the promotion of public games.

The very preparations of the feasts for these games announced something great: all the animosities of war were laid by, and no armed band dared to set foot on the sacred territory. Ten months before the festival, eight judges were chosen from the eight tribes of the province, so that time was given them to study their duty, and even exercise themselves in contests of every species. Small and great burned with desire for the dawn of the eleventh day of the month hekatombeon, on which the penthemeral festival commenced; and the expression of anticipated delight was more conspicuous in every countenance from month to month, as the day approached, and the competitors flocked together from every region.

The spot was delightful: religion and national taste had combined to heighten its effect. A spacious sacred grove, surrounded by walls, displayed the noblest works of art. Here was the magnificent temple of Jupiter, constructed of white marble, near seventy feet high: and in it sat the exquisite statue of the god, composed of gold and ivory, the crown of its head almost touching the roof.

Here

Here too was the temple of Juno, in which the girls of the province ran races on the festival of the goddess: and here were the most beautiful edifices, superb altars, and an immense number of statues of victors in the olympian games, and columns of alliance, with the treaties formed between the grecian nations engraven on them.

The festival commenced in the evening: the numerous altars, adorned with garlands and wreaths of flowers, were besprinkled with the blood of the sacrifices. Thus the gods were worshipped till midnight. This summoned all to the course. What an immense multitude gradually overspread the plain! What acclamations and tears of joy saluted the rising Sun! The champions assembled; the steeds neighed; the triumphal cars rattled along. The competitors now repaired to the sacred grove, and solemnly affirmed the regularity of their preparations, in the presence of the eight judges, at the feet of a statue of Jove. They returned: they publickly stripped: their bodies were rubbed and anointed. The spectators in the stadium made way on each side. A herald summoned the runners. They appeared: he announced their names, their country: if they were already known by former

former victories, every voice united in repeating the loud acclamations they had before received. The decisive moment approached. Hope and fear displayed themselves more and more forcibly on the countenances of the spectators, here for this favoured countryman, there for that, who came forward to rejoice and honour his native land by his victory. The trumpets gave the signal: the runners flew like lightning to the goal: the eight judges decided the victory: the herald proclaimed the victor's name, and thousands of voices repeated the sound.

The remainder of the day, as well as of the following, was spent in the farther exercise of the race. The children imitated the example of those of riper years, as in all the other exercises; and the youths here imbued a manly spirit, very different from the sighing sentimentality of our young novel readers. On the following days were exhibited the chariot-races; wrestling, with its spurious and savage offspring, boxing; throwing the discus; leaping; &c. At length the day of crowning the victors arrived: it was the fifth of the grand national festival; a day of triumph for the conquerors, of supreme joy for their families, of patriotic rapture for their town and country,

country, of which we have no conception, as few of us have any tie to our paternal soil beyond a house and home, which may easily be found in any other land. Chilo died of joy, when embracing his son as victor on this day; and Diagoras of Rhodes expired his last breath in the crowd, when two of his children, out of filial affection, took from their brows the crowns they had gained, placed them on their father's head, and thus bore him triumphantly on their shoulders through the applauding multitude.—Now say, do rough exercises, and hardness of body, stifle those tender sentiments, which, as civilized men, we should never renounce?

The festivity began with sacrifices in the consecrated grove. The eight judges then advanced, followed by the victors, who, adorned with splendid robes, and bearing palm-branches in their hands, moved to the sound of flutes. Their joy bordered on ecstasy. Attended by the innumerable multitude, they then proceeded to the theatre, where triumphal hymns alternated with music, till the herald proclaimed the names of the victorious candidates for the meed of glory. These then appeared before the chief judge, and received from his hands the olive crown, plucked

from

from a tree behind the temple of Jove, which was an object of public veneration; on account of the use to which it was appropriated. Instantly the voices of all the spectators united in the most lively participation of delight, in the applause and admiration of the victors. Thank-offerings, a public feast in the Prytaneum, and dancing, concluded the ceremony: poets and statuaries immortalized the fame of the conquerors, which flew from mouth to mouth, was carried by the spectators to the remotest provinces, was told by fathers to children, and the uninheritable title of *victor* was thenceforward added to their names.

These public games were what chiefly supported the national spirit, preserved the young citizens from effeminacy, inspired them with manly sentiments, and formed them into heroes. Similar exercises were the general passion of youth; and most families had places appropriated to bodily exercises in their habitations, and at their country seats. Thus should it be in all nations, that would not wholly sink under the despotic sceptre of refinement.

Mercurialis, who wrote his celebrated work on gymnastics not for the antiquarian alone,

but, as a physician, to incite his contemporaries to revive the beneficial exercises of the ancients, as the means of improving the bodily strength and health of mankind, expresses himself thus: ‘the ancients had so high an opinion of gymnastics, that Plato and Aristotle, not to mention others, considered a commonwealth as defective, in which they were neglected: and, indeed, justly; for if the improvement of the *mind* ought to be our constant aim, and the mind cannot accomplish any thing of worth and importance without the aid of the *body*, assuredly it is incumbent on us, to promote the health and dexterity of the body, that it may be capable of serving the mind, and assisting, instead of impeding its operations. For this reason Plato, in *Protagoras*, calls him a cripple, who, cultivating his mind alone, suffers his body to languish through sloth and inactivity*.’ In this passage is included much important truth: may parents, tutors, and magistrates, at length lay it to heart!

Instead of the poetic dreams of the greeks and romans, which are less suitable to our

* Hieronymus Mercurialis *de Arte gymnastica.* Amst. 1672, p. 14.

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religion even than they are to our minds, what prevents us from imitating the arts they really possessed, to infuse strength and manliness both into the minds and bodies of our youth?

This question leads me to *an investigation of the obstacles and objections*, that may be urged against the practice of gymnastics. Of these the following are the most important.

1. *We have no places suited to the purpose: where among us are to be found the magnificent edifices of the ancient gymnaſia, paleſtra and amphitheatres?*

We do not want them; for the object of gymnastics may be attained, without erecting edifices appropriated to the purpose. Almost all our public schools and academies have spacious courts, as well as gardens, where bodily exercises may be practised, at least for the present, without any parade, till the people at large are gradually accustomed to the sight: and where no other place offers, there are the open fields. Our villages have the finest places for the practice of such exercises by the country youth. The requisite implements for the purpose cost very little: they are far from being out of the reach of the ordinary allowance of pocket money to

children at schools. How readily would sensible parents disburse the necessary expences, which are scarcely worth mentioning, if the heads of schools, and the government, which ought by all means to encourage gymnastic sports*, would promote the scheme by their recommendation; if sovereigns would favour these salutary exercises, and exalt them into national festivals, of which we are in great want! They have something in them so grand and affecting; so much power of operating on the national spirit, guiding the people, inspiring them with patriotism, exalting their sense of virtue and honour, and diffusing a certain nobleness of mind even among the lowest classes; that they appear to me the grand means of educating a whole nation. Greece and Rome, and very lately France, afford us instances of this. How often have discontents and the spirit of insurrection been quieted by public festivals, in which the people forgot the burdens that oppressed them! In modern days, the wellbeloved prince of Dessau has exhibited a proof, that national festivities may be made a valuable though neglected instrument of popular education.

* Frank's Medical Police.

Near Worlitz is a plain of great extent. On one side the view is terminated by a beautiful wood; on the other by the town, where friendly poplars equally shade the humble cottage and the pavilion of the prince. It is an affecting sight, on the twenty-fourth of September, to behold the *conflūx* of the people, and the *olympic games* as it were again revived. The ground is nearly level. No hill obstructs the view: but an artificial mount rises on one side, and supports a kind of temple surmounted by a dome, the upper part of which forms a circular hall, while the base constitutes the cemetery of the prince's family!

How elegantly has the worthy prince here combined the serious thoughts of death with the delights of life; leaving to the contemplative mind the tranquil pleasure of uniting both in one sentiment of felicity!

Cypresses and lofty poplars surround the peaceful mausoleum; and a winding staircase leads to the entrance of the hall.

The morning appears: the people gradually flock to the plain: from every side music announces the approach of the joyous villages: the inhabitants of the metropolis hasten to join them: strangers mix with the crowd: while

the good prince and his consort unmistrusting join in the company of their beloved subjects.

Ten maidens, from ten villages, annually nominated, who are adjudged by the fathers of families in each to be the most deserving for their industry, probity, and virtue, are seated at a festive table, on this the birthday of their noble princess, by whose hands they are crowned, and by whom they are clothed. Each receives as a dowry 150 rixdollars [£.25], with a wedding garment. To day they more especially enjoy the favour of the good and beloved mother of their country: but the other young people of the villages are not forgotten. A course is opened round the hill. Thousands of spectators form it's boundary. Boys and girls, youths and maidens, in turn strive to gain the victory in the race; and the conquerors are rewarded for their juvenile exertions by hats, and little ornaments of dress, which the prince distributes with his own hands. Soon the more robust males of the villages mount their horses, and contend for similar prizes. The multitude, variously grouped in tents and arbours, is now refreshed by a rural meal, to the pleasures of which the good prince contributes all in his power. Music and acclama-

mations resound from every quarter, into which the place is divided for the races of the different villagers. When this is ended, the dance begins, and continues till the close of day. An illumination of the building and the trees frequently concludes the festival; and an appointed signal reminds the delighted people, that it is time to retire.

How blissful is such a day! The youth expect it with eagerness; they exercise their corporal faculties in preparation for it; it animates their love to their country, which requires not labour and submission alone, but gratifies them with pleasures; and to their prince, who gives a proof on this day, that his good subjects are dear to him, and that he is not unmindful of them in his palace.

Sovereigns, what a pleasing method of leading and gaining the love of a whole people! how important, and how much to be recommended, in an age of revolutions!

2. *Want of teachers.* It must be confessed, that we are not without books, which treat of the gymnastics of the ancients: but these give only general historical accounts of them, without any practical instructions for their performance; great part of them has been little considered even by men of learning; and

and at bottom, I am persuaded by my own experience, a practical trial of the accounts given will always prove the best commentary on them. Without becoming the panegyrist of what I have done myself, I may venture to affirm, that the descriptions of gymnastic exercises given in the second part of this work are more full and practical, than are elsewhere to be found either in any ancient or modern writer. I trust they will be found sufficient to supply the beginner with every necessary instruction for carrying them into practice.

But who will voluntarily undertake the business? The private tutor is urged to it by the most pressing necessity—the want of occupation for his pupils, a wearisome grievance both to them, and to himself. How can this be more effectually and salutarily removed, than by bodily exercises? Surely not by reading, or playing at cards; both of which are too frequently injurious, as every man of understanding knows. If he reside in the country, what excellent opportunities do the plain and the wood afford him for various exercises of the body! in these he enjoys unobjectionable means of attaching his pupils to him, while he recalls the years of his own youth, and mixes in their innocent sports.

In cities, and public schools, the business is not so easy. Of this I shall say more in another place. That a certain pride lies in our way, is true; though there are many men, on whose hearts are deeply engraven the words: let us do good without ceasing.

Yet who *can* undertake the business? Of the ability there is no doubt. All private tutors are of an age, in which the capability for such exercises still remains, and the inclination to them exists, or can easily be excited. In almost all schools there are young men of the like stamp. Let me add, that this would completely remedy the destructive effect, which their sedentary way of life has on their own health. On this head I shall subjoin the following passage from Frank's Medical Police, Vol. II, p. 629. 'In all cities, which are the native seats of inactive life, either the masters of the lower schools should accompany all their scholars, without exception, into the open field, regulate their sports, and superintend their exercises; or, which I would rather advise, a particular master of gymnastics should be appointed, who should have the sole charge of the exercises of youth. With regard to the health of children at school, the office of such a master would assuredly be of inferior

inferior importance to none, that the good of the state demands, in places where the children of a very numerous class of citizens are brought up, at great expense, to be, for the most part, infirm beings, and useful but for a short period of life.'

3. *Want of time.* For what is useful and necessary we must find time: it is our duty. These four words are a sufficient answer to the whole objection. But I know not what pretence there can be for urging this want of time. In the first place, it is scarcely necessary to say, that children cannot do without recreation. If it be admitted, then, that the cultivation of their minds ought to be the principal object, against which however much may be urged, it would still be true, that 'the exercise of the body, and that of the mind, always serve as relaxations to each other*', even if Rousseau had not considered this as the grand secret of education.

Is it not more judicious, therefore, to admit these bodily exercises and recreations into the system of education, than to leave them to the caprice of children? If we set proper bounds to late sleeping in a morning,

* *Emilius.*

reading

reading of novels, playing at cards, visiting the theatre, which is a place little calculated for youth, long meals, and a thousand other methods of idling away the hours, in which our youth consume a large portion of their most valuable years, we shall have ample time for improving the corporal faculties. I say this chiefly with a view to the elder part of our youth: but with children under the age of eight, if we would not counteract Nature's exertions for the *perfectioning of their bodies*, we must not make the *cultivation of the mind* the principal object. 'There is not, perhaps, a greater and more reprehensible mistake in education, than the raging propensity of compelling children to extraordinary (mental) exertions, and exacting from them a rapid progress: *this is the grave both of their health and their talents*; and, notwithstanding all that has been said against it by men of great abilities, who have attacked it with more force than success, it is still by far too common *.' This age, I shall repeat with Tiffot, is designed for bodily exercise, which strengthens the frame, and not for study, which enfeebles it, and checks the growth.

* Tiffot on the Health of Men of Letters.

O ye parents, lay to heart this discourse in favour of innocent creatures, whom Nature, relying on your affection, has delivered into your hands; who are your own flesh and blood; and who, with amiable simplicity, in great measure depend on you for their destiny! 'Love childhood: encourage it's sports, it's pleasures, it's amiable instinct. Which of you has not sometimes regretted that age, when the mouth is ever decked with smiles, and the mind continually at peace *?'

Even the innocent sports of children will promote the developement of the mind, by exercising and strengthening the organs, without which the act of thinking is impracticable; and they lay the foundation of that harmony between the corporal and mental faculties, from which probably arises what we term a sound understanding. Children will remain more apt for instruction, if we do not break the spring of their capacity for it by too early overstraining: nay they may enjoy it perpetually, if we have but the art of intermixing it with their bodily exercises.

4. *Ridicule.* It is true, that the singularity of gymnastic exercises would in some places

* Emilius,

attract

attract notice, and might excite laughter: but if this may be deemed a sufficient reason for neglecting what our reason approves, as proper to be done, we must relinquish every improvement in the least striking for its novelty. ‘Whatever people may say or do,’ says Stuve on this very subject, ‘no man of probity should suffer himself to be deterred from the direct road to a great and important end. An intelligent schoolmaster will undoubtedly encourage his scholars, both by precept and example, in every thing that respects the care of the body, from a sense of duty*.’

In fact, the manner in which we set about it may be so ordered, as to take off much of the glare of novelty. This is very easy, if we begin with exercises, that are already well known, and gradually proceed to the more uncommon, at the same time familiarising men’s minds with the object of bodily exercises. When gymnasts, whose beards were already grown, began to amuse themselves in a public part of my native town with playing at fives, or without the gates at foot-

* Stuve über das Schulwesen, ‘on the management of Schools,’ p. 58.

ball, no one saw any thing ridiculous in it: the passers by stood still, and expressed the pleasure they took in beholding the recreations of youth. How easily may we proceed from these to the proper gymnastic exercises, in almost every town and village!

This I believe to be the best mode of introducing what is certainly much to be wished among youth. Those who are already grown up we may excuse: waiting for the rise of another generation, and the adoption of an improved care for the general health, which shall accomplish the wish of the worthy Frank, who observes, that 'gymnastic sports deserve to be promoted in every possible way by a good police;' and acceding to the following sentiments of this friend of humankind: 'the welfare of a great town is but half consulted, when theatres and concerts are open to the inhabitants, if no opportunity for bodily exercises be afforded them. The gymnastic sports just mentioned, indeed,' he had been speaking of some practised in Persia, 'would not be perfectly suited to our country: but to me it appears very *irrational*, to require Spanish gravity in a place, where we ought merely to consult what is agreeable to the body, and where no sport is too puerile, or

too

too mean, which is capable of rendering useful members of the state fit for new exertions for the welfare of their fellow-citizens*?

5. *Danger.* This seems to be inseparable from gymnastic exercises : but long experience has convinced me, that it merely seems so. For seven years I have been in the habit of seeing a considerable number of children and youths, weak and strong, little and big, awkward and expert, almost daily engaged in gynmaistic exercises, from the lowest degree to the highest and apparently perilous, and to this day *not one* of them has received any injury. This is a stronger argument than any reasoning upon the subject. In the course of the following work I shall occasionally introduce every necessary precaution. With womanish fears I shall not endeavour to contend ; for why should I labour in vain ? these may prohibit running or riding, and even eating or drinking, as they *may be* attended with danger. But let the timorous parent and tutor reflect, that we cannot always live in our chambers ; and that a young man incurs a thousand times more danger, if we send him into the world with a delicate frame,

* System of Medical Police.

and

and unpractised limbs, than if we gradually form him, as far as we can, *to overcome difficulties*.

A boy ten years old climbed to the summit of a lofty pine, which grew between some blocks of porphyry. The point, being too young, and tender, snapped off. He fell: but not down. While falling he quickly caught hold of a branch in his way, and smiled as if nothing had happened. What undaunted presence of mind! would it have been possessed by an unpractised youth?—No: but he would not have sought the danger.—True: yet danger would have sought him, and found him the more easily, in proportion as he was tenderly educated. ‘ You render them delicate, and tender, you take them out of their condition of man, into which they will one day return in spite of you. To avoid exposing them to a few natural evils, you create for them evils which nature never intended*.’

6. *Alienation from sedentary employments.*

‘ If much time be spent in bodily exercises, the youth so educated, with their robust bodies, will not afterwards accommodate themselves to sedentary occupations, to which, however, they are frequently destined! they will neglect

* Emilius.

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their busines, or incur disease from confine-
ment.'

The *much*, in this objection, should be *too much*; and then, it is evident, it would not be altogether without reason. But what avail such misrepresentations? Do we wish absolutely to debar youth from all mental, or even sedentary occupations, and employ them wholly in corporal exercises, like the savages of Canada? What rational man would desire this? The true proposition is: make a judicious distribution of time, and then there will be enough for the improvement both of body and mind: mental labour will then sufficiently habituate the youth to abstract and sedentary employment, so that he will be capable of submitting to his future condition as a man: nay the full health and strength of his body will render the exertions of his mind more easy and effective.

On the other hand, it is unquestionably dangerous in a high degree, to habituate youth, through too much sitting; to a certain *inactivity*, which begins *physically*, but ends *morally and mentally*. It is no easy matter, to exculpate our common mode of education from the charge of this sin, which inclines men

men more to *enjoy* than to *act*, both mentally and corporally.

If we accustom our youth to genuine activity, both of body and mind, their minds will hereafter be active in sedentary occupations : and in those hours of recreation, which are *indispensable* to every condition, they will know how to preserve their health, and unbend their minds, by bodily exercises and employments ; instead of seeking to refresh themselves after sitting and mental labour by indolent lolling, cards and similar games, or listless sauntering.

7. *Rudeness of Mind.* It has often been urged, that the cultivation of the strength and faculties of the body, by gymnastic exercises, has a pernicious influence on the qualities of the mind, which are thereby rendered in some sort rude and unpolished. This is a very unlucky objection, though it has a philosophical appearance.

On examining the matter, we find at bottom the same kind of reasoning, that has been employed by philosophers, as they style themselves, with a considerable effect, in defence of the justice of the slave-trade. According to these, anatomical and physiological investigation has shown, that the

bodies of negroes have more perfections than ours: now, say they, let us subtract these from the sum of their mental qualities, and the remainder will be a mere animal mind, consequently destitute of all capacity for moral sentiment, all freedom of action, and all perfectibility.

Let us, however, think more benevolently. We will admit, that the cultivation of the mind *alone* is destructive to the body; and, conversely, that the cultivation of the body *alone* makes the mind rude. This is incontrovertibly true: but does it follow, that we should neglect the body, and cultivate the mind alone, at the expense of our health and strength, thus producing in the end weak and diseased minds, through the reaction of bodily infirmity? Surely no one will maintain this. ‘That man is too learned, who is so at the cost of his health.*’ On the other hand, will any tutor of sound understanding seek the improvement of the body alone? Certainly not. It is astonishing, that such objections should be made.

We aim at a perfection, in which there is something enchanting: a harmony of mind and

* Tiffot:

body,

body, in which both, equally found, equally energetic, derive pleasure, not pain, from their connexion. To attain this, a part of the public games, that contributed so much to maintain and promote corporal strength and beauty, to steel the courage, and to produce immortal deeds of heroism, in the most polished and enlightened nations of antiquity, must be introduced among us: games, to which they were indebted for their powers of mind, their poetic genius, the truth and simplicity of their sentiments, the grace which gave irresistible attraction to their works. He who does not comprehend this truth, and see it's connexion, I will boldly affirm, has never rightly observed and studied mankind *.

This is not the place to say more, and therefore I shall conclude with the apt words of Rousseau. ‘It is a sad mistake, to suppose, that the exercise of the body is injurious to the operations of the mind; as if the two actions ought not to proceed in concert, and one always to be a guide to the other †.’

8. *Strength and address of body, united with courage and fortitude, produce a certain selfconfidence, a propensity to be our own re-*

* Stuve.

† Emilius, Book II.

dressors when injured. These qualities in the character of a peaceful citizen are useless, and frequently injurious.

This is the last objection I have here to answer.

To me *selfconfidence* seems very desirable: it belongs to the manly character: it is one of the most necessary qualities in every enterprize. Take it away, and the mind is crippled. It is true, it may degenerate: it may become presumption, it may become foolhardiness: but under what circumstances?—when the understanding is not found. And is it necessary, that the understanding must be defective, when the body is strong and adroit? All the world will say no. Well then; this *certain*, that is *injudicious* selfconfidence is not the consequence of bodily strength, but of defective cultivation of the heart and mind. The man whose limbs are strong and active, and whose mind at the same time is not feeble and degenerate, will employ both to rescue himself and others from danger, and to defend himself when attacked: this is not only just and manful, but it is meritorious: he saves a man to society, and he repels a villain. It is as truly manful to extricate himself from difficulties. Would to God, that every one

of

of my countrymen possessed this selfconfidence; it would do our nation more honour, than all the exclamations of our sentimentalists. It is true, this selfsuccour in cases of injury and trouble is considered in the objection as at variance with the laws: but I have already shown, that it depends on a man's understanding, not on his strength and address, whether it shall be employed illegally or not.

Admitting however, that strength and address would lead the expert to knock down his adversary, instead of appealing to a court of justice: the proceeding would not be commendable; yet, if we examined into the cause, should we not find it in the disproportional weakness of his opponent? I believe wholly so: for where no one is weak, no one is strong; no one will depend more on the force of his muscles than another. At any rate, can it be possible, that a greater disproportion of personal strength should exist either between individuals, or whole classes of men, than in society as at present constituted, where almost all those, who work in the open air, or at laborious occupations, are capable of knocking down with ease their opponents of the sedentary classes, man for man? This

consideration renders it obvious, that the gradual improvement of the body by gymnastic exercises, the advantages of which would be particularly felt by the weaker classes, would tend to a continual diminution of the inequality, that now exists.

Let us place the matter in another serious point of view. The object of civil society is the security of property and person. I say nothing of the augmentation of happiness. For this we *justly* pay taxes, as is, or ought to be universally* known. We unite in social order, and sacrifice our wild state of native liberty, and many conveniences, *for the sake of justice*: but if the government would attack the basis of all our well-being, our *bodily strength*, and that fullness of health which is inseparably connected with it, also *for the sake of justice*, we must beg to be excused. For instance, if the government should maintain, that the weal of the state and of the individual would not allow any of its members to enjoy his physical powers in full perfection, and to cultivate them, lest a certain selfconfidence *might* enable him to assist himself, where he ought to require the aid of the law;

* Too frequently, however, not in schools.

if the state, consequently, would have only feeble and timid subjects, that it might guide them with more ease: this would be more horrible than any restriction of the liberty of the press, which is but an impotent attempt to annihilate the exercise of thinking; it would be an attack on the foundation of all our welfare, and the state would deserve?— But why should I say this? happily no state can attempt it: for if it did, to act consistently, it must prohibit the use of knives, hatchets, and even pokers, for any of these, in a case of emergency, might impart a fearful power to the arm of the feeble.

CHAP. V.

ON THE USE AND END OF GYMNASTICS.

THERE was a time when diseases were little known, when age was almost the only infirmity, and death the sole physician. This period was not governed by the sceptre of Saturn, as the ancients say, but by that of Nature: when her sovereignty was no longer acknowledged, the golden age fled away, and men began to study physic. Still, however, it lingers here and there, where the son of Nature, in a happy climate, reposes after moderate labour, in the shade of the bread-fruit-tree; where, blackened by the fervid heat of the solar ray, he cultivates his cassava and rice; where he pursues for miles the stag and the wild ox, or tends his peaceful herds; on the banks of the Niger and the Mississippi, or on alpine heights.

One revolution only deserves the name of great; the *transformation* of the active son of Nature into a feeble and refined animal: every other is but child's play to this. Now, after a review of two thousand years, in which the fate of mankind every where, and at all times,

times, exhibits the same consequences of rudeness and refinement, the observer's heart sinks within him, when he compares the two states together, and balances the happiness they produce. In the one scale is the *natural man*, in the fullness of bodily health, strength, and activity, with few wants, and these easily satisfied: his eye beams with the pleasure of existence: he enjoys the sense of his strength and liberty; and, if any thing press upon him, he has sufficient energy to resist it. Life, while it continues, is to him a source of delight: he never fancifully mounts into the region of chimeras; he has no conflict with the phantoms of a diseased imagination; and when Death at length requires him to resign all the gifts of Nature, no one takes his departure more cheerfully.—In the other scale is the *man of refinement*, of delicate health and feeble body, with an endless series of wants. His eye too frequently expresses the bitterness of sorrow, that arises from his situation; whether real, or imaginary, it matters little. With him nothing goes well: the sense of his weakness torments him; he wills more than he can perform: he suffers from every pressure, and sinks under it, instead of resisting:

ing: and when Death comes, he finds his wishes increased.

In these sketches there is much truth. I am no friend to arcadian reveries: I know, that the man of Nature has to contend with disease, with want, and with the debility of age: but far less, and with much greater success, than his refined brother, whose actual sufferings are increased by a number of imaginary evils, and who, of feebler nerves, is much less able to repel or support them. The former almost uninterruptedly enjoys to old age that charm of life, which we taste only when we are fortunate in our childhood: the latter frequently loses all enjoyment of life with his boyish years, and sinks into the arms of care and trouble. In short, that possesses *bodily well-being, with mental rudeness; this, infirmity and refinement, with a cultivated mind.*

I shall not here decide, which of the two enjoys the greater happiness in life: but this is incontrovertible, that, if we unite in our imagination the *corporal perfections* of the man of Nature with the *cultivated intellect* of the more refined inhabitant of the World, we shall have the most perfect model of the human species;

species; a model, at the contemplation of which the heart beats high.

The union of these is a problem, that has long engaged the attention of men, and has been deemed at one time an impossibility, while at another it has been held very practicable. It is unquestionably one of the most important problems in which all the polished part of the human species is interested. Probably this union is not attainable to the height of perfection, as I myself am much inclined to doubt: but will this justify us, in abandoning it altogether, and leaving every thing to its own course, which is certainly far from good? Besides, does not the history of the most admirable nation of antiquity inform us, that it has been carried to a very high degree? I will deliver in a few words my opinion of the manner, in which it is possible:

Let man be *cultivated* as much as may be, and let his natural rudeness be polished away; but never subject him to enervating refinement.

It is particularly necessary, to discriminate our words with precision, as the things themselves are so different. *Cultivation* is not *refinement*: this is a tasteful heightening of our sensuality by indulgence; that, the genuine improvement of the corporal and intellectual

man:

man: this, a modish colouring, laid on by the spirit of the age; that, a real perfectioning of our whole being: this weakens our powers; that actually augments them. Is not the idea of weakness included in that of refinement? ‘Certainly,’ says Ackermann *, ‘we should see fewer emaciated persons, fewer unfortunates, whom the dissipation of their strength has rendered victims to death, if our manners were less refined.’

Cultivation gives us women, who dread not a little rain, who superintend their domestic economy with spirit, who bring up a number of children suckled by themselves, who are no slaves to their toilette, but dress themselves in the good german fashion; women of genuine feelings, of clear and improved understanding, who admire the moon, not as a witness to the effusions of their sorrows and commiserations, but because it illuminates the night; who have a taste for books commonly dreaded, but can find entertainment in scarcely any novel, because the wit is too trite, and the fiction spun out too long: it likewise gives us men, to whom such wives are suitable. *Refinement* affords us sentimental, mooneyed

* On the Diseases of the Learned.

creatures;

creatures ; girls that will kneel down before a withered tree, and beweep the poor thing's fate *. Enough of this : an example shall render the difference more obvious.

A second Rousseau goes to America, in order to carry into execution the great problem of education, of which I have been speaking. He takes for it's subject a young huron, or whom you please. He polishes the rude child of nature, exercises his mental faculties, forms his heart, employs every means to extend his knowledge, and initiates him into all the science of Europe : at the same time he leaves the completion of his physical education to his situation among the active sons of nature, and his own stomach, that he may become in this respect a genuine, strong, healthy huron. His education is thus at length completed, and we have a *cultivated man of nature*.

But if this Rousseau should bring up the young huron in an european apartment, protect him against every rude impression of the weather, and every inconvenience of life, feed him with viands artificially prepared, suffer him to be tenderly nursed, accustom him to

* If any one doubt this, I refer him to Frank's Medical Police, III, 792.

luxury, enfeeble him by bodily inactivity and the assistance of male and female servants *, and nurture his feelings to the extreme of susceptibility ; every one of these proceedings would make a deep impression, would penetrate to the marrow, the man of nature would vanish, and nothing but a cultivated and refined being would remain.

Let us *refine* no longer : a thread too finely spun is liable to be torn by a breath of air. But let *cultivation* in the whole extent of the word, I mean both with regard to body and mind, be the aim of our education. He, who attains this, educates to perfection ; he realises the beautiful image, of which I spoke above, in a higher or lower degree, in proportion as he knows how to unite the two branches of education in more or less perfect harmony.

* I knew an instance of a german boy, twelve years of age, who could not put on a garment, with which few care to invest themselves before every eye ; who could not go alone, because he was afraid ; and, who, which I think is saying sufficient, was once ordered to take rhubarb, because his pale cheek, being a little reddened by a kiss from a bearded uncle, gave reason to apprehend, that there was some acrimony in his blood.

Our physical education, compared with our intellectual, is too *impotent*, if I may use the expression. This, if we understand by it merely the pure, genuine cultivation of the mind, has a preponderance over that; but when we consider it as united with refinement, as is the case, what must be the event? how shall man approach that ideal perfection, which consists in the harmony of his powers?

Let us then give more force and energy to physical education, and labour effectively against what I call refinement: thus *harmony between the mind and body* will be the sole and true end of gymnastics.

This was acknowledged twenty-two centuries ago by one of the wisest of men, by Plato*. May I be permitted to embellish my pages with his sentiments. They are nearly as follows: ‘many suppose, that *music* † is intended to form the mind; *gymnastics*, the body alone. To me it appears, that the mind is the sole object of both. He, who pursues gymnastics only, will become hardhearted and

* De Republica, III, p. 625.

† For many readers it may not be superfluous to remark, that the greeks comprised under the term *music* the whole circle of knowledge and mental acquirements.

untractable: he, who applies himself singly to music, will become soft and effeminate. But the softness of the one is the basis of a philosophical character; which, if too much encouraged, degenerates into effeminacy; if cultivated only in a due degree, becomes politeness of manners: the rudeness of the other springs from an ardent and fiery temperament; which, if properly managed, would produce courage and magnanimity; if too much heated, degenerates into harshness and barbarity. Both, therefore, should be cherished in due proportion; and then we obtain the energetic mind of a wise and manly character; otherwise we have only effeminate voluptuaries, or brutal savages. Let the man of ardent constitution give himself up entirely to music, to the delightful soothing of its gentle harmony, and dedicate his life to the voluptuous titillation of song; his natural impetuosity will be advantageously diminished at first: but if he continue the same course, his mind will grow torpid, his strength will languish, and he will enervate his whole soul. Let the same man add ~~at~~ himself altogether to gymnastics, eat and exercise himself, neglect music and philosophy; his body will grow stronger, he will become bold and intrepid: but

but will not his mind, thus despising all intercourse with the muses, and improved by no science, no meditation, no branch of music, remain feeble and dull? Behold the foe of science and the muses! ignorant and gross, he lives without cultivation, and without manners, like a brute beast. *Music* and *gymnastics* were bestowed on man by some deity, not for the improvement of his mind and body; for the advantage the body derives from them is merely incidental; but for the improvement of his mind alone; for the perfecting of his fortitude and philosophy, for the duly harmonizing of these qualities, for the strengthening or softening of them in a just degree. The artist, therefore, who combines *music* with *gymnastics* in the most eligible proportion, and applies them to the mind, is to me the most perfect and harmonious musician; far beyond him who knows how to tune the strings of the lyre.'

Thus far the philosophic Plato. And Rousseau must have thought much in the same manner, when he wrote: 'the grand secret of education is, to contrive, that the exercise of the body and that of the mind may always serve as relaxations to each other*'.

* *Emilius.*

Let us now analyse the grand aim of gymnastics, which no one, either before or since Plato, could possibly reprove, into it's separate parts, and we shall thus have the following highly desirable qualities, that we endeavour by means of gymnastics to attain.

1. *Health of body, and unclouded serenity of mind.*

Nothing, said a philosopher, absolutely nothing can indemnify us for the loss of youthful health and vigour: not wealth, not honours, not learning, not wisdom,—nay, not the most exalted virtue, not the most divine desert.

It seems altogether unnecessary to attempt to prove, that bodily motion is necessary to preserve and fortify the health. Our most celebrated physicians agree, that the sources of health are to be found in pure air, cold water, wholesome and temperate diet, and due bodily exertion. Even infirm adults become healthy and strong, when they apply to these with resolution, perseverance, and cheerfulness. But we may seek in vain throughout the three kingdoms of nature, in all the five quarters of the Globe *, for the means of

* The german geographers consider New Holland, with all the countries that have been lately discovered in the health.

health, if we so completely quit Nature's guiding hand, and sink spiritless in the arms of luxury and ease. To this we inevitably destined our youth, and render them incapable of a voluntary recourse to these fountains of health, when we accustom them to fear the weather, and restrain them from corporal exertion, which promotes all the functions of the animal machine, gives them firmness and stability, imparts strength to the muscles and ligaments, braces the nerves, renders the circulation brisk, and diffuses health and vigour over the whole frame. Every one knows this: but every one does not *regard it*. I will introduce my reader to one of the first physicians of Europe, to the great practitioner Frederic Hoffmann *: 'The support of the body require not nourishment alone, but the separation of what cannot be converted into blood, and what is daily thrown off from the blood is of this kind. This, according to Sanctarius, amounts to more than is discharged by all the other emunctories. Perspiration, then,

southern hemisphere, as a fifth quarter of the Globe, apparently with good reason, and give it the name of *Austrasia*. T.

* *De Motu Corp. opt. Medicin.* ' Bodily Exercise the best of Medicines.'

is the principal way in which this can be effected. Consequently all the means, that are capable of promoting this, should be employed; and of these the most natural, and therefore the *best*, are *bodily motion* and *exercise*. Perspiration depends on the circulation of the blood. The skin is the seat of a number of small glands, which secrete from the blood the particles that are to be discharged. These particles are conveyed from the glands to the pores of the skin, through which they are expelled from the system. Care must be taken, therefore, that abundance of blood be conveyed to these glands; in order to which its circulation must be promoted. This is accomplished by means of motion, one chief use of which this is. Another is the assisting of digestion, the promotion of the appetite, the exhilaration and refreshment of body and mind. A third consists in the expulsion of pernicious humours: whence people, who are accustomed to much exercise, are little troubled with severe diseases, with stone, gout, ague, cachexy, dropsy, or hypochondriacism. For, to say the truth, an idle way of life, particularly where but a small portion of fluid is taken into the stomach, is the true parent of all diseases, that arise from an impurity and thickness

thickness of the blood, and have obstruction of the internal parts for their basis. On the other hand, nothing in the world is a more certain and efficacious preservative, than a sufficiency of bodily motion. It excels every medicine, that can be recommended for the preservation of health, and prevention of disease; and in this view may justly be called a *panacea*, as it not only removes the causes of disorders, but is an effectual mean of strengthening the body, and keeping it in a proper tone.'

What I just quoted is the substance of the seven first paragraphs of Hoffmann's work, and pretty fully exhibits the important and beneficial consequences of bodily exercise. If we attain to a sufficient degree a brisk circulation of the blood, free perspiration and elimination of cacochemical fluids, good digestion and appetite, cheerfulness of mind, and refreshment of body, we may hold ourselves completely secure against three fourths of the catalogue of diseases.

Beside these effects on health, I shall here touch on another operation in our machine, which is promoted by exercise. This is the secretion of animal fluids, which, derived from the blood, are modified anew by the in-

ternal vessels, and then again mingled with the blood. If the internal vessels be in part so fine, that they determine the figure of the particles of the fluids, and consequently so constructed, that no fluid can pass them without undergoing an improvement, the fluids cannot too frequently percolate these passages. Supposing the blood to pervade the whole body when at rest twelve times in an hour, but fifteen or sixteen times when in motion; it necessarily follows, that the quantity of secretion in the liver, spleen, brain, and other parts, where such fluids are generated, must be increased in proportion. How beneficial this must be to the human frame may easily be presumed before hand, and is clearly proved from examination of the fatal effects of obstructions in these vessels.

Francis Fuller, a celebrated English physician, who had experienced the effects of exercise on himself, particularly notices one of these operations*. He considers it as indubitable, that the more a man stirs himself, the more animal spirits are secreted in his brain,

* *Medicina Gymnastica: or a Treatise concerning the Power of Exercise with Respect to the Animal Economy, and the great Necessity of it in the Cure of several distempers.* London, 1707, p. 284.

And though in consequence of the perspiration induced by motion, more in proportion may be lost, than the overplus that is produced in the brain; yet he is of opinion, that ‘the blood undergoes a beneficial change from the increased admixture; for the true animal spirits,’ he adds, ‘have their office to perform in the blood, before they pass off at the skin, and they are not of that fugitive make as is commonly supposed. They seem to be intended to temperate the acrimony of the blood, embue it with a plastic quality, and may serve to execute other functions beside that of motion.’

Whoever has attended to the effects of corporal exercise, and observed the great refreshment of mind and body from it, which is not easily to be accounted for by a quickened circulation alone, will see no reason to doubt the operation just mentioned, or some one similar; whether it consist in a more copious generation, effusion, or movement of the animal spirits; as they are called; or in the activity, excited by motion, of that animal electricity, to which Galvani, Valli, Carminati, and Volta, have called our attention.

So much for the effect of exercise on the fluids of the human body. On the solids, it's

influence is no less important. By means of the invigorated circulation of the fluids, these acquire more vitality and nutrition; for, let the animal spirits be what they may, they are in consequence distributed to the nerves in greater abundance; and the blood, which every where applies itself to the solids, and thus promotes their growth, will be capable of effecting this important office in a more perfect degree, when it is impelled more copiously to every part. The same accelerated circulation will disburden them of all impure juices; and thus, as Lucian observes, gymnastics produce people, who are as far from exhibiting an indolent pallid lump of fat, as meagerness; who sweat away all useless flesh, and retain only what imparts force and strength. ‘These exercises,’ he adds, ‘perform the same office to the human frame, as winnowing does to corn; the chaff and impurities are blown away, the pure grain only is left behind *.’ It is easy to conceive, that, in consequence of greater increase, the expulsion of all unsound and sluggish juices, and more especially the frequent tension occurring during exercise, the solids will acquire more strength and elasticity. Whoever lies a few days in bed feels himself

* Lucian. Anach. sect. 25.

weak

weak and giddy : sitting and standing destroy the equilibrium of the solid parts ; more violent exercise is necessary to preserve it.

What has just been said of the effects of gymnastics is of general importance, being perfectly applicable to adults, though in a far greater degree to growing youth. To these the brisk circulation of all the fluids, the moderate and duly proportioned * exercise of all the limbs and muscles, are far more necessary, partly to promote the growth of all parts of the body ; more especially to prevent the muscles and limbs from growing into diffuse, whence arises a stiffness of the machine, observable in many persons who enjoyed not proper exercise in their youth ; and lastly, that the growth of each limb may continue proportionate to the rest. This proportionate growth is in many respects highly conducive to health, as well as to symmetry of person. For example, to me it appears incontestible, that many people

* Proportionate exercise of all the corporal faculties cannot be so perfectly obtained from any common mechanical employment, as from gymnastics. This one argument, and there are many others, is of itself sufficient to stop the mouths of those, who might say : ‘ away with gymnastics ! it is enough, if you employ your children in various mechanical labours,’

have

have the chest too strait for the lungs, in consequence of their not having been enabled, while growing, to expand this part daily by the forcible respiration, which exercise induces; while the lungs in the mean time continuing their proper growth, began to form cohesions, or to be compressed in a cavity too narrow for them.

Hitherto we have considered gymnastics only as preserving and fortifying the health; but they are certainly capable of *restoring* it when lost, and strengthening an enfeebled body to an astonishing degree. To this they were more especially applied by the ancient greeks: their gymnastics, aliptes, iatraliptes, and paedotribæ, were at the same time physicians. The aliptes in particular were called physicians; and Ikkus of Tarētūm, and Herodicus, are mentioned by Plato * as the inventors of gymnastic medicine. Their pharmacy and aetiology were very imperfect; in the whole art of physic they were far inferior to us; and yet they treated diseases with great success; for they applied themselves with extraordinary diligence to diagnostics, or the knowledge of the symptoms of diseases, and

* De Republica, Lib. III, p. 622.

called in the aid of corporal exercises, particularly bathing and equitation, by means of which they supplied what was wanting to them in other remedies.

Not at that period alone, but even now, it may justly be asserted, that the treatment of diseases is imperfect without these exercises; for there are cases, in which it will be absolutely necessary, to recur to bodily exercise, as long as Nature shall hold on her course. Diseases that depend on the solids cannot be removed, unless we set the solids in action conformably to Nature. Are you rendered weak and miserable by your passions; are your nerves relaxed, and your muscles enfeebled, by continued indolence, and inactivity of body, by warm drinks, study, and the like? and would you restore yourself by means of *internal* remedies? *Ridiculous!* they will be of as much service, as Rubach's prayer for shaking legs. The proceeding differs little from that which has rendered you infirm: it cannot restore vigour to the solids; choose for this a method more consonant to the nature of the case: exercise the body; have recourse to the bath. Hear what Fuller says:

' Exercise is to physic, as bandage is to surgery, an assistance, or medium, without which

which many other administrations, though ever so noble, will not succeed. It is a kind of reserve; but yet of that efficacy, that the thing you most depend upon, though in itself very powerful, may yet receive it's *derniere puissance* from this reserve. And to this it is, that we must undoubtedly attribute the wonderful success, which the ancients had in their curing with such indifferent materials, as their pharmacy afforded them *.

In fact, this great physician recommends bodily exercise against consumption, a species of dropsy, and hypochondriacism.

During a period of eight years, I have seen sixty or seventy boys living here at Schnepfenthal, on whose countenances full health was almost uninterruptedly visible. Many fresh comers joined the healthy body far from robust; several weak and infirm: and they became, frequently in a short time, healthy and strong. Diseases seemed to have taken their flight, except that occasionally a slight transient illness appeared. Go to innumerable families, where there are five or six children, you will commonly see one or other languishing under sickness; and of physic there is no

* Medicina gymnastica, p. 67.

end.

end. The contrast is too great, not to catch the reader's attention. Why were such a considerable number of children almost constantly in health? They enjoyed *regular* and wholesome meals. This was something; but not all. Neither was their diet so simple as many might suppose; nor must the cause be sought in the restriction of quantity; for these young persons usually ate more than is customary in private houses, because they had better appetites. The situation is healthy, and the water wholesome; but not more so than in many other places. Something, too, might be attributed to their clothing. They were equally as much strangers to caps, hats, furs, waistcoats, worsted stockings, lined shirts, neckcloths, and garters; as to featherbeds, the place of which was supplied by mattresses of straw or horsehair. All these things, unquestionably, had a beneficial effect on them; as well as the attention paid to their health by their foster-fathers: but the ground of it is chiefly to be sought in the daily exercising and hardening the body. This it is that preeminently strengthens the skin, the muscles, and the nerves; keeps up the circulation of the fluids in its due course; fortifies against the weather; excites appetite; promotes digestion; and renders even compound

pound viands innoxious; verifying the proverb, nothing is poison to the healthy stomach.

Serenity of mind is the immediate consequence of health of body. Deprive a man of this, and he is at once impoverished, his mind is palsied: to him Nature appears a wilderness; the World, a vale of tears: benevolence toward his fellow-creatures gradually vanishes from his heart; the indulgence of affection, and the welcome of cheerfulness, are strangers to him; his mind is engaged in a perpetual conflict with melancholy presentiments, and gloomy cares. With it falls the grand pillar of his health. But what is to be thought of children, of boys, of youths, in the garb of melancholy, with the forced smile betokening woe? of young men without cheerfulness, at an age when all around them should be Paradise? The formation of their minds, their progress in knowledge, the moulding of their heart, and the welfare of their body, depend on gayety and peace. —— Enough! If gymnastics produced nothing but *health*, and *cheerfulness*, assuredly the practice ought to be universally adopted.

2. *Hardiness, an improved direction of the passions, and more manly sentiments.*

The

The day of our birth introduces us into the midst of dangers, the multifarious operations of the elements, of living beings, of events: we feel them incessantly, as long as we exist, and it is not in our power to escape them: it behoves us, therefore, to learn to *resist* them. For this *strength* and *firmness* of body and mind are necessary. As not our welfare merely, but our very existence here depends on these qualities, they are undoubtedly the most important, that man can possess. Man was created in his present situation by the deity himself; and can it be supposed, that he should not possess from nature the capacity for a stability necessary to maintain him in it? Every thing that destroys this capacity is called *enervation*. What is it that enervates us? It is *softening sensuality*, usually called by the gentler name of refined manners, which overruns the soil of Europe with oriental luxuriance.

Every creature strives after what is pleasing to it. The despot instinct impels the brute to seek as pleasant what it prescribes. Here we find rigorous necessity, founded on the structure of the animal machine, as well as on its destination: yet man tames the elephant and the beast of prey, and teaches them tricks

tricks for amusement; yet he feeds the eagle, the seamew, and the stork with bread alone; the cow, with dried fish: he binds instinct in the chains of *habit*. Habit, therefore, is paramount to instinct. In man instinct has little force; every thing that is pleasing to him is rendered so by habit.

A young esquimaux, remote from Labrador, ate roast beef at an english table: but with what raptures did he behold a seal cut up! Obedient to the impulse of appetite, he ran to it, caught the warm oil as it flowed from it in both hands, and gulped it down with the exclamation: ‘O carry me back to my dear native land, where I may have my bellyful of this!’ Never perhaps was wish more ardent: yet assuredly the palate of an european would have found nothing pleasing in a draught of warm seal oil. I knew a boy, who used to slide barefoot on the ice. A person having compassion upon him gave him a pair of shoes; but when he wanted to slide, he pulled them off. Think of a man in boots lined with fur! Hence we may deduce the following consequences:

What is pleasing depends merely on *habit*, and the modification of our senses is entirely *it's work*.

Accord-

Accordingly, it is neither barbarous, nor severe, to accustom the young citizen of the World, who has yet no habits, to any thing we please; however repugnant it may be to our feelings, which have acquired an opposite bias. This is confirmed by repeated experience: the train-oil of the eskimaux, and the coffee of the european; the tobacco which the sailor chews on either side of his mouth, and the sweatineats which the little voluptuary dissolves on his tongue; the cold ice, and the warm furred boots; the hard bed of the poor, and the eider-down of the rich; the effluvia of the stable, and the perfumes of a lady's chamber; the restless activity of the industrious, and the darling repose of the indolent: all these are perfectly equal to the senses of man, when he has to accustom himself to them, if he have not previously imbibed an opposite habit.

Parents, it is your duty to take upon you the guidance of your children's senses, and to conduct them uniformly in *that* direction, which leads to manliness and strength of mind and body. Gymnastics unquestionably afford no slight means of approaching this end, more nearly than has hitherto been done. They lead the pupil into the open air, where, in the

ardour of exercise, he is regardless of rain and wind, heat and cold *; where he steels his muscles, integuments, and nerves; where bodily fatigue of various kinds becomes *pleasant* to him; where he acquires what we term manliness; where, in short, he is more and more inured to receive from the hands of Providence the troubles of life with manly patience and activity, because he has not merely learned to endure, but to feel pleasure in exercising his powers in endurance.

Thus man appears in a great and amiable point of view. Not so, when he is early enfeebled by an enervating system of education, and

* ‘If you would instruct me farther respecting the object of gymnastics,’ says Anacharsis the scythian to Solon, in Lucian, ‘let us go yonder into the shade. I confess to you, I cannot support the heat of the sunshine on my bare head; and I left my hat at home, that I might not walk about among you greeks in a foreign dress. I am astonished, that you, a man in years, do not sweat with the heat like me, that you do not regard it, that you never seek the shade.’ ‘My dear Anacharsis,’ answered Solon in the following words, ‘for this I am indebted to gymnastics, which you hold in such contempt, δι ματαιοι γαρ έτοι πονοι, ω Αναχαρσι, και οι συνεχεις τω πηλω κυβερνοεις, και οι ιπαθμεις εγ τη Φαρμω ταλαιπωρω, τετο ήμιν τω αμυντηριον παρεχθοι προς τας τη ήλιος Σολας, και ουκ ετι πιλε δεομεθα, οι την ακτινα κωλυσει καθικνεισθαι της κεφαλης. Lucian. Anachars. Sect. 16.

when

when we render ourselves obnoxious to the reproach of Theano: ‘ you bring up your children as if they were the offspring of Sardanapalus: their manhood is unbraced by the immoderate enjoyment of sensual gratifications: What will you make of a boy, who cries if he have not food the moment he demands it, and who continually requires the most savoury dishes at table; who is melting with heat in summer, and quakes and shudders at the cold of a frosty day; who is sulky under reproof, enraged if every thing do not instantly yield to his will; and pouts till his palate is gratified with whatever it craves; who wastes his time in the idleness he loves, and saunters about a whining, selfish creature? Children spoiled by indulgence grow up to slaves. Away with such sensual gratification! accustom your children to hard fare, let them support hunger and thirst, heat and cold. By these means alone the active powers of the mind will become strong and manly. To young people labour is the foretaste of their more perfect future zeal for virtue: well watered with this, the plant of virtue will strike the deeper root into the ground *.’

* From the letter of Theano, the wife of Pythagoras, to her friend Eubula: The whole epistle may be seen in Fr. Gedike’s Aristotle, & Baselow.

It is scarcely credible how far the body may be rendered proof against all weathers, and against even violent exertions, by daily exercise. Experience has taught me, that we are in general very ignorant of what children can bear, and trust to them much too little; from which ignorance arises the tender care, that enervates our offspring. Who would suppose, that boys of five or six years old could take a journey on foot of full five hours length among the mountains? Yet I saw this done by two princes, at the command of their noble parents, who are superior to the prejudices of education. I saw a company of boys, from eight to fourteen years of age, perform a journey of nineteen hours, not including the time spent in meals, during the heat of a summer's day and the darkness of night, without the slightest bodily inconvenience accruing from it to one of them. I know that this company of sixteen or twenty boys were wetted to the skin on similar excursions in the latter end of autumn without the least injury. Accustomed to bathe, they are not afraid of the water, when the ponds are already frozen over. I once beheld fourteen of them break through ice of six or eight inches thick, and bathe in the opening thus made,

made, as a proof of their hardiness. In a severely cold day in January, a boy, of his own accord, laid himself down in a brook, which does not easily freeze on account of the velocity of its current; and continued in it till his skin was of the redness of scarlet. Often have I been delighted to hear this or that boy or youth, particularly the amiable v. d. B. . . . , say, during his gymnastic exercises, ‘I will not eat or drink, till I have mastered such a thing:’ and no one ever broke his word. For the satisfaction of certain persons let me add, as a proof of the unequivocalness of this manly sense, that the same youths have frequently performed sedentary and tedious tasks with equal zeal, and never stirred from their seats, till they were accomplished.

Room will not allow me here to enlarge farther on this subject: hear once more what a physician says.

‘The gymnastics of the ancients deserve to be sedulously studied, and introduced with suitable alterations. I am persuaded they would prove excellent means of rendering our men and women, youths and maidens, boys and girls, whom sentimentality has enervated,

once more healthy, strong, and *hardy**.' Is it not possible, again to bring strength of nerves, and manliness of mind, as much in vogue, as weak nerves and sentimentality have been for years the *fashionable disease*?

3. *Strength and address—courage and presence of mind in danger.*

That these qualities may be promoted by gymnastics, needs no proof. It is a truth so generally acknowledged, that it is commonly supposed to be the sole end of gymnastic exercises. I flatter myself, that I have considerably enlarged this confined notion, in the course of the present chapter: so that, when any exercise is recommended, the question will no longer be urged, against what particular danger or difficulty in common life is it intended to guard? Difficulties and dangers depend on an infinitely diversified combination of circumstances, and in consequence are infinitely varied, so that we can take account only of the most common: but every exercise must be generally valuable, which contributes in any way to form the body, though we are not able to discern how it may prove serviceable hereafter against this or that particular danger.

* Gruner's *Almanach fuer Aerzte*, 'Almanac for Physicians, &c.' 1783, p. 46.

4. *Activity.*

Let us confine a man, who is even greatly disposed to be industrious, in a tight, handsome dress, composed of materials that may easily be spoiled; and he will lose all desire of working. He feels himself indolent, and indisposed to do any thing; he is afraid of spoiling the beauty of his clothes. Thus his former aptitude and inclination to work will be destroyed for the present, by the helplessness to which his dress has reduced him*.

We have a dress, that fits closer to us, than any a taylor ever made; I mean the *body*. If it's muscles be not exercised, and it's nerves strengthened, from the earliest years; if it be not healthy, and full of energy; it's helplessness will operate but too easily on the mind; which will lose all desire of being active in a case so incommodious, and to protect which from danger it must be ever watchful. Here is an insurmountable helplessness, which at

* Though this truth is inserted here merely as an example, I cannot let slip the occasion of exhorting all parents, in the most pressing manner, never to dress out their children in fine clothes as they are called. They are fully capable of giving such a turn to the character of the future man, as it would otherwise have never received.

first seems indeed to extend only to bodily activity, but which gradually inflicts a lameness on the mind, from which it will never recover. Our own feelings tell us, that, for the exercise of thinking, the body is requisite to the mind. Sluggishness of body necessarily affects the intellect; and an habitual disuse of the physical power too easily destroys the spiritual and moral. At bottom is it any thing more, than that idleness is the root of all evil?

If, then, it be possible, to preserve and fortify the health, to harden the body and give it strength and address, and to render the mind serene and enterprising, by means of gymnastic exercises; we then lay the foundation both of corporal and mental activity.

5. *Improvement of the bodily form—and beauty of mind.*

It is universally acknowledged, that the Greeks were eminent for beauty, and symmetry of form. In my opinion, this is ascribable to their happy climate, excellent works of art*, dress, and way of life; though their
gymnaſtic

* I would appeal to the Madonnas of catholic countries. The cast of countenance, that prevails among the maidens of Fulda, bears the same relation to the physiognomy of the peasant girls of Eichfeld, as the representations of the

gymnastic exercises had a particular influence on it. The limbs were as far from being deformed, and the physiognomy disfigured by oppressive labour, as this from acquiring an inexpressive vacancy, and those from being relaxed, by soft and effeminate repose. All the limbs enjoyed freedom and motion, judiciously adapted to the constitution of the body. Not only were they all exercised, but those more especially which most required exercise, to keep them in due equilibrium with the others, with regard to their strength and bulk. Thus they grew to their natural proportion; thus the muscles swelled up to a beautiful and manly firmness; thus the features of the boy and youth were formed, under constant employment of the mind, and corporal exertions, inspiring valour, to the real beauty of the masculine countenance, the expression of courage and understanding. Nay they even understood the art of supplying flesh where it was wanting; if, as I imagine, the want were occasioned by defect of circulation: fat people were rendered lean; and those who were too lean, fleshy; partly by

the Virgin Mary at Fulda bear to those in the Eichfeld churches.

means

means of active exercises, but more particularly by frictions *.

It is not so with us. For one well proportioned man we have always a considerable number more or less deformed, in one respect or other. I would not maintain, that our *climate* has any influence in this: I am persuaded, it is sufficiently favourable. Our *works of art* have probably more effect. Our public places are for the most part destitute of these decorations: very few exhibit any statues; and in these few our heroes are often dressed in the french fashion. The greater part of our engravings, far from being calculated to imprint the idea of true beauty on the national mind, are much more suited to corrupt it. Our dress operates far more powerfully. I will say nothing of stays; from which disgusting fashion sound sense promises soon to emancipate us: but there are other things, which in a similar manner prevent the free developement of the body and limbs, and confine us in our use of them. What rational purpose have we men in view, when we fetter

* Galen, on the Art of preserving Health, Book II, ch. 6, speaks at the outset of friction, employed for the purpose of augmenting or diminishing the flesh. It is noticed in various other places likewise.

the neck, the breast, the knees, the hips, and the thighs*? I know no other reason, than that we conform to the fashion, because it has become a fashion. Think of it, however, as applied to youth in the full period of their growth; and you will perceive, that it hinders mechanical movement, checks the spread of the limbs, and obstructs the circulation of the fluids. This is sufficient of itself to keep particular limbs small and weak, or to force them out of their natural shape. The receipt is:

* ‘Our neck is surrounded by a paltry bandage, which could have been invented only by some awkward surgeon, who wished first to stop the circulation through the jugular veins, and then open them: our shirts gird the neck and wrists: a tight waistcoat mails our body: a pair of breeches engrapss our loins: our knees are bound with garters and knee-bands: and our feet are crammed into shoes, which go near to deprive them of feeling and all power of motion.

‘He who has long lived confined in a strait case loses at length all muscular power, and becomes a doll, as most of our city beaux and belles are.’ Frank’s Med. Pol. Vol. III. p. 727 and 730.

[Permit me to observe, the prevailing fashion of pantaloons or trousers, when not kept up by a tight waistband, but by suspensors passing over the shoulders, with half boots, when sufficiently roomy, and with flexible soles, is a step toward the removal of some of these objections, highly to be commended. T.]

to

to have slender legs, knees, and calves, confine them with garters, kneebands, and tight boots; to cripple the feet, wear narrow shoes; to straiten the chest, and prevent the free projection of the sternon, compress them with tight clothes, and keep them closely covered.

What blessings may intelligent families diffuse among mankind! what a good example may they give by a better chosen dress for youth!

I now come to the chief point, *our way of life*: but I must consider it only in one respect, that is, as it regards the movement and exercise of the limbs.

We have feeble mechanics; with spindle shanks, because they do not use their legs; with slender hands and arms, because they employ them only in work fit for ladies; with narrow, pinched chests, heads inclining, and backs bowed, because they sit a great deal. The same may be said of people of superiour ranks, particularly the learned. In short, their bodies, if not completely ruined, are altogether devoid of symmetry, from *want of movement*. Others are stiff, heavy, unadroit, and crippled, from an opposite cause, from excessive labour. In these the physiognomy indicates immoderate exertion, which has disfigured

figured the muscles of the face, and stamped on them the indelible impression of slavish toil: in those it announces a body debilitated, and ill at ease. Do we not meet with coarseness of feature more frequently in the country, than in cities?

I am here speaking of adults, in whom little alteration can be effected: but I adduce them only by way of example. If we treat youth in a similar manner: if, during the period of their growth, the time when Nature is labouring to develope their different limbs in due proportion, we treat them improperly, and counteract Nature's efforts by too much sitting and repose, or by immoderate exertion, how shall their bodies retain their symmetry?

Both extremes must and will be avoided in a good education. This takes care, that youth do not sit too much: it gives strength and elasticity to all the muscles by moderate exertion: it invigorates the growth, and promotes the symmetry of the body, by a regular circulation of the fluids: it imparts to the physiognomy openness and gayety, somewhat of manliness and courage, with a slight tint of pleasing dignity and an enterprising spirit.

All this is in a great degree attainable, if not in every instance completely, by the daily use of *pleasing exercises*, begun in early childhood:

hood: nay very perceptible progress toward it may be made, even if we have let slip the first six years. A word or two, however, by way of explanation. It is easy to be conceived, that every limb must acquire increase of strength and bulk through *exercise*; for this impels the fluids more forcibly into it, so that the muscles are visibly rendered turgid: and if these fluids, the blood more especially, contain those particles, which promote the growth of the limb, they will of course deposit a greater abundance of nutritious particles in the limb that is exercised, and enlarge its substance. Every one may try this experiment on himself: let him take hold of a rope, and draw himself up from the ground by means of his hands; let him throw a stone twenty times with all his force, or the like; and the turgescence of the muscles of his arms will become visible to his eyes. Hence may be deduced the rule: would you have the legs strong and big, run, jump, and ride, frequently; and so of the rest. As to the physiognomy, it appears to me sufficiently determined, that it is produced partly by the long continued operation of the internal feelings, partly by the occupations of the body. Thus the sorrowful features of vexation and disappointed hope, or the rugged distortions of despair, gradually impress themselves

on the countenance of him, who has long been a prey to suffering: and thus the physiognomy of the tailor commonly differs from that of the blacksmith; the countenance of the man of letters, from that of the soldier.

Innocence, unconstraint, cheerfulness, and activity, are the most exquisite sculptors of the human countenance: gymnastic exercises are favourable to them all; and if they promote temperate exertion, firmness, and courage, they will season the innocent, serene, and lively physiognomy with the features of manly decision and fearlessness, and thus combine the expression of gay, pleasing innocence with energetic fortitude.

Mental beauty. Our morality depends on the *will*, and this is entirely governed by the *views* of our minds. This is unquestionably true; yet here no connection between morality and bodily perfection is apparent. But the best views, and the best will, secure nothing more than the theory of good actions: they alone do not render a man truly moral and virtuous; for with both he may remain a mere moral verbalist. People of this sort, whom we would mildly term theorists, are abundantly numerous: they all say, with Paul: ‘to will

is

is present with me, but how to perform I find not.'

Performance requires the *power of action*; and to exert this power, the body is usually of prime importance: it must be strong, healthy, and adroit, before performance is practicable. Here then the connexion between morality and gymnastics is clear and incontestable.

But this subject admits of other points of contemplation. Through the means of the body we acquire our perceptions and ideas: their modification depends on *it*, and from them our views are derived. Thus here again there is connexion between morality and the condition of the body. On this subject, which I have already noticed (p. 79) much may be said. In a word, our *moral health* and *energy* are commonly the result of our *physical health* and *strength*; and our moral failings are often nothing more than consequences of our bodily defects*. The firmness

* 'Physical decline and moral depravity are intimately connected; and those laws, which are requisite for the preservation of health, serve also to preserve and improve the morals.' Doublet, the physician. See Hufeland's *Neueste Annalen der Französischen Arzneykunde*, 'Modern Annals of Physic in France,' Vol. II, p. 395.

and

and equanimity of a man under all circumstances, his courage in defence of the truth; the magnanimity with which he encounters every thing, even the elements themselves, to save a fellowcreature, his intrinsic benevolence, &c., are more or less the result of his bodily health and strength. There are feeble and infirm yet patient sufferers of great moral energy, it is true; but we admire them precisely because they are exceptions to the general rule.

Lastly, if we consider gymnastics only as an *innocent mode of employing our time*, as a *preservative against the dangers of idleness*, of how much advantage may they be in a moral view!

The complaints respecting want of amusement for youth are general: but for this we ourselves are to blame; since we commonly attend only to one branch of their activity, that of the mind; I might almost say, that of the memory and imagination alone: the other, equally important, that of the body, we leave to chance; and when this introduces no occupation, we find the circle of youthful employments too contracted. In truth, if gymnastics served only to withdraw youth from cards, pernicious books, and the like; if they rendered it the *prevailing fashion* among

youth to seek their chief pastime, and the principal delight of their leisure hours in corporal exercises, they would certainly do much.

The Greeks already had this important object in view in their gymnastics. ‘Our young men are exercised,’ says Solon to Anacharsis, in Lucian, ‘partly for the purpose of rendering them valiant warriors. But then they are likewise so much the better citizens in time of peace: they do not contend in trifling things; *idleness* does not lead them into scandalous debauchery; they spend their leisure hours in these exercises *.’

I shall likewise recommend to serious consideration, what Börner says. If, with proper attention to diet, both in eating and drinking, with the due promotion of a free, tranquil, and moderately brisk circulation, ‘the body be diligently exercised in various ways in the open air, and fortified against the impression of soft sentiments, the boy will grow up to a youth, the youth to manhood, without pernicious and detestable propensities finding any place to take root.’

6. *Acuteness of the senses, truth of feeling, and penetration of mind.*

* Lucian's Anacharsis, § 30.

At our birth we enter upon the stage of the World almost insensible. Our organs are perfect; but our capacity of perfection is still asleep. Impressions from without awaken it by degrees; we learn to use our organs, to perceive with increasing facility and clearness the impressions we receive through them; and our understanding begins to exercise itself in judging of what we perceive by means of our organs.

Thus the thinking faculty of man is gradually formed through the means of the *body*, or through external impressions: could we keep these from it, it would lie in a profound slumber to all eternity. On the other hand it is equally true, that the developement of this faculty will take place with the more quickness, the more we expose it to these impressions; thereby exercising its capacity of perception, and affording the judgment an opportunity of improving itself by means of exercise. Hence it is evident, that the perfection of the understanding keeps pace with the expertness of the senses, or rather of the perceptive faculty. But the more we bring our body into collision with surrounding objects, that is, the more we *exercise* it; the more will its organs be sharpened, and the mental powers be roused,

to examine the various relations of those objects to us, and investigate their effects.

'Would you cultivate the understanding of your pupil; cultivate the powers it is to govern, exercise his body continually, render it healthy and robust, in order to make him wise and rational: let him toil, let him act, let him run, let him shout, let him be ever in motion, that he may become a man in vigour, and he will soon be so in point of reason *.'

From what has been said it is apparent, that true reason, I do not mean the hysterical flights of genius, but what we call sound sense, is not formed independently of the body; nay, that a well framed and exercised body is precisely what facilitates and assures the proper performance of the mental functions †. Hoffman cured idiots by exercise: and according to Des Cartes, the mind depends so much on the constitution and state of the bodily organs, that, if any means of increasing sagacity were to be found, they must necessarily be

* Emilius, Vol. II.

† A very remarkable instance of neglected cultivation of the body, and imbecility of mind arising from it, may be found in the *Archive der Erziehungskunde, 'Records of Education,'* by a Society of practical Tutors; Weissenfels and Leipzic, 1792, vol. II, p. 190.

sought in the art of physic.* The following thoughts of Hufeland I perused with much pleasure. Many obliquities of the moral sense and understanding are at bottom nothing more than maladies and dissonances of the organs of sense; and I am fully convinced, that a healthy organisation, and a natural distribution and harmony of the powers, are the essential foundations of that noble endowment, which is called sound understanding. As a physician I shall be pardoned, if I think I have observed, that on this account wit, genius, inflamed imagination, enthusiasm, and the like, are far more frequent in our generation, than genuine natural sense, and rectitude of judgment; if I consider these splendid qualities of the present day as serious symptoms of a diseased and unfortunate irritability of mind, not as bursts of energy; and if I venture to hope, that a healthier tone of mind may be expected from the continuance of a better and more natural treatment of the physical man †.'

* Hoffmann de Motu optim. Corpor. Medicin.; ' Motion the best Medicine,' § 9; Cartesius de Methodo, N° 6.

† Journal des Luxus. und der Moden, ' Journal of Luxury and Fashion,' 1792, N° 5, p. 226.

Let us, then, exercise the body. Without it we cannot think: it is the loom in which we weave the lovely web of thought. The better it is kept in order by use, the more easy and certain will be our work, the more natural the web, and the more shall we be able to extend and enlarge it: when it is deranged, our labours will be perplexed: ‘a costive habit,’ says the president von Kotzebue, ‘may extinguish the divine flame of genius.’

One more very important object of gymnastics I cannot pass over here, particularly as it is in some measure connected with the preceding. It is:

Gymnastics ensure the necessary intermission of mental labour.

The mind of a man, still more of a child, is incapable of long perseverance in mental exertion. This is a generally acknowledged truth: to which I shall add one more to the same purpose, which is less known. Young men, and those who are not advanced in years, if healthy and of warm constitutions, are never greatly inclined to mental exertion, till their bodies are to a certain degree fatigued, I do not say wholly exhausted. Till this fatigue is produced, their body has a preponderance over the mind; and in this case it is a truly

natural

natural want, which cannot easily be silenced. Each muscle requires exertion, and the whole machine strives to employ it's powers. This is vulgarly called, to have no fit-still flesh. If the fatigue be once brought on, the call for bodily exertion is stilled, the mind is no longer disturbed by it, and all it's labours are facilitated.

Our common mode of education pays no regard to this. Youths appear in school strengthened by sleep and food, and too frequently, alas ! thrown into unnatural heat and commotion, a true intoxication of the nerves, by drinking coffee *. How is it possible to fix the attention under such circumstances ? The body requires action : if this be not allowed, it will obtain it in silence, it will act upon the passions, and above all the fiery temperament of youth will inflame the imagination. Thus attention slumbers. We are barbarous when we attempt to awaken it with the rod ; we require from innocent children what is unnatural ; we inflict pain on the body to prevent it's action, yet activity was bestowed on it by it's creator, yet Nature renovates

* In Germany coffee is very commonly drunk for breakfast, and after dinner, as tea is with us. T.

this activity every night. The mind is soon carried away by the whirlwind of corporal energies, and lost in the realm of chimeras.

Here I shall conclude this chapter on the object of gymnastics. I freely avow I am far from having exhausted the subject: but many, perhaps, will think me already too long.

To facilitate the contemplation of them, I shall just repeat the desirable parallel between the qualities of the body and mind.

Health of body—serenity of mind.

Hardiness—manliness of sentiment.

Strength and address—presence of
mind and courage.

Activity of body—activity of mind.

Excellence of form—mental beauty.

Acuteness of the senses—strength of
understanding.

Now let me ask: are not these objects suited to our political institutions, to our manners, and to our state of civilization? and are they not worthy the most ardent endeavours of a cultivated people?

To this it may justly be retorted, are your gymnastics calculated to produce them?

Try all, and hold fast that which is good.

PART II.

CHAP. I.

QUALITIES, PLACE, AND DIVISION OF CORPORAL EXERCISES.

THE purposes already noticed must determine the nature of the exercises to be pursued. We are neither greeks, whose little territory required to be perpetually defended against the attacks of neighbouring greeks, or remoter barbarians; nor romans, addicted to the base art of subjugating all nations, far and near. To us, therefore, the spartan *kryptie**, and the roman *gladiators*, are equally abhorrent. As little are we *athletes*; and our youths need not dash out their teeth, fracture their ribs, dislocate their limbs, or strangle one another. By our exercises we seek to gain health, not to destroy it; to acquire hardiness, not the insensibility of can-

* In the spartan constitution there was a secret law against the helots, for the purpose of inuring the youth to war. The strongest and boldest of their youths were selected, armed with daggers, and sent to hunt these slaves. Every one they could master they stabbed to death.

nibals; we strive after manliness and courage, not savage rudeness and ferocity. Our gymnastics, therefore, must be moulded to the ends we propose to attain, not to those of the greeks and romans*.

Every one will readily assent to this; and all those, who have been apprehensive, that they should find in this book a series of extravagances, will begin to have more confidence in it. But I shall immediately proceed to the *opposite extreme*.

There are many, who have been accustomed to treat their children with a tenderness unsuitable even to a sick chamber. Gellert's fable of the apes and bears aptly exhibits these parents. To such no kind of gymnastics can be adapted: for them, therefore, I cannot write. Their children must neither run nor jump; for fear they should overheat themselves: they must neither bathe, nor venture into the sharp air; lest they should take cold: they

* I would here have gone farther into this subject, the difference between the ends proposed by the greeks, and by us, in gymnastics: but I was apprehensive, that the greater part of my readers would be little desirous of a discussion of this branch of antiquities. Besides, the history of gymnastics is but a collateral consideration in this work.

must

must do nothing in which corporal exertion is required, that they may not meet with some accident.

I can no more square myself by these principles, than by the foregoing. Both are extremes: the middle way alone remains. To keep to this upon the whole is not difficult: but, in pursuing it, to avoid every step that deviates, or *seems* to deviate from it, is often difficult, sometimes impossible. In the former case I must *request* indulgence; in the latter, method and deliberation: for it will not be my fault, if a man suppose, that this step or that is a deviation from the middle path, or if this or that exercise be carried to an extreme, through precipitancy or misconception, while too little consideration is paid to the exercising party.

Were I to give a definition of these exercises, it would be: *gymnastics are labour in the garb of youthful mirth.*

We require of this labour, that it shall promote the circulation, and strengthen the muscles and nerves: accordingly, it must sometimes set the whole body in action, at others particular limbs; and must induce sometimes more exertion, sometimes less, without overstraining.

We wish gymnastics to act as preservatives against effeminate sensuality, and to steel both the physical and moral man: and therefore they must be connected with labour; require patience and perseverance; admit not of enervating rest; inure the pupil to more or less pain, that he may learn to contemn it; and expose him to the weather and the elements, to harden the integuments, which are designed to protect the whole body.

We would have them strengthen the body, and render it adroit and agile: for which purposes they must possess sufficient difficulty, to call forth the energies of the muscles and tendons; require a considerable degree of suppleness of body; and approach in some measure the artificial.

They should exalt the courage, inspire presence of mind, excite and cherish activity: in the practice, therefore, there should be some portion of danger, sometimes in one way, sometimes in another, courageous perseverance, and a high degree of emulation.

Beauty of form should be promoted by them; and of course they should be altogether different from the stunting toil of the day-labourer: they should be no burden, to occasion distortion of the shape; but should operate uniformly on

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the whole body, or exercise now this limb principally, now that, to which exercise may be most necessary.

Our *gymnasium* is, as far as is practicable, *the open air*. We would inure boys to the variations of nature, where fair alternates with foul: to what purpose, therefore, should we erect spacious edifices?

It is an engaging sight, to behold a company of tender children and blooming youths engaged in bodily occupations: their natural, careless minds, their propensity to be ever outdoing themselves, their increasing powers, and their activity, give us hopes, that we shall hereafter see in them active, spirited, useful men, in whatever situation they may be placed; and in some degree warrant to us their virtue and innocence.

Their place of exercise is on the skirts of a wood. It is a dry turf, on which a few scattered trees afford occasional spots of shade. Here and there rises a little sandy hill: loftier mountains adorn the vicinity, and a brook of moderate size meanders in numerous windings through the plain. If the neighbourhood afford a river likewise, nothing more can be desired; and we may well dispense with the superb gymnastic structures of the ancients:

but any open place of moderate extent, and such are every where to be found, is sufficient for our purpose.

Gymnastic exercises, as applicable to the purposes of education, may be divided into three classes :

A. *Gymnastic exercises properly so called*, which are intended more for the improvement of the body, than for social diversion,

B. *Manual labours*.

C. *Social games for youth*.

These bodily exercises I shall first reduce to a *system*, and then describe in their order. There are many points of view, from which they may be considered and arranged. If we take for this purpose their *ends*, I mean the various mental or corporal perfections, which we promise ourselves from them, our whole system would want solidity : if we look to the nature of the exercises themselves, and arrange them accordingly, dividing them into *passive* and *active*, *serious* and *inoffensive*, we shall have but a superficial division. Nothing remains, therefore, but to seek the foundations of a system of gymnastics in the *human frame* itself. This is unquestionably most adequate to the nature of the thing, and of great utility in practice. Accordingly, I should distinguish the

the body into it's principal parts, and appropriate to every limb, and to every grand muscle, it's particular exercises: but very few gymnastic movements exercise only one muscle or one limb; most of them employ several; and all, more or less, the whole body. Hence it follows, that we cannot well arrange our descriptions of these exercises after this anatomical order; which would render it necessary, to repeat one and the same exercise under different heads, thus inducing useless prolixity. Thus it appears to me far preferable, to exhibit at the close a system of gymnastic exercises founded on anatomical principles, which shall facilitate the view of the whole by it's tabular brevity.

Another mode of arranging these exercises may be pursued, the *generical*: and this I shall adopt; as it seems to me the most natural, because it does not separate exercises of a similar kind; and the most useful, as it associates more readily than any other with the method in which gymnastics should be taught. For example, the hanging by one hand is an elementary exercise of climbing; and consequently, it is better to bring it under this genus, than, conformably to the arrange-

ments abovementioned, to confound it with those exercises, which strengthen the hands, arms, and shoulders, or to jumble it among the difficult or easy exercises. Thus, in the course of the following work, exercises of every kind will be found brought together in due order.

For the satisfaction of the admirers of antiquity, I must here say a word or two respecting the division of gymnastics among the greeks. The whole education of a grecian citizen turned on two grand points, *music* and *gymnastics*. Plato subdivides both, and assigns two leading branches to gymnastics: 1, *ορχηστης*, saltation: and 2, *παλη*, contest.

Saltation, again, he farther divides into the imitation of the *decorous*, *σπεδαια*, and of the *indecorous*, *φαυλη*. The first comprehends the *warlike*, or *pyrrhic*, the *peaceful*, and a middle species, namely the *bacchanalian* dance: *πολεμικη* or *πυρριχη*, *ειρηνικη*, and *αμφισβητημενη*. The first was an imitation of the grecian tactics: the second was employed on all festive occasions, as the expression of joy, happiness, and gratitude. Each comprised various sorts of dances, and each was accompanied with music.

This

This division is made evidently in a moral view alone. Other ancient authors give three principal kinds of saltation *. 1. *Cubistics*, κυβιστικα; probably the art of tumbling. 2. *Spheristics*, σφαιριστις; comprising all the various modes of playing with balls, for which a distinct part of the gymnasium was appropriated latterly by the name of σφαιριστηριον, and which had its particular teachers, σφαιριστικοι. 3. *Orchestics*, ορχηστις, properly so called; or theatrical saltation.

Of *palestrics*, or the proper gymnastic exercises, five species only were reckoned at first, whence they bore the name of the *five games*, πενταθλον. These were leaping, running, throwing the discus, darting the javelin, and wrestling.

Αλμα, ποδωκεινον, δισκον, αποντα, παλην.

Boxing, and probably other exercises, were afterwards added; though the name of *pentathlon* was retained. It is very likely too, that this appellation was not always understood as applying to these five exercises exclusively, but to others in their stead; for many of great utility, which were pursued in the gymnasium as well as out of it, and several

* See Mercurialis de Arte Gymnastica, p. 118.

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of which I shall notice hereafter, were certainly excluded from this system of gymnastics only at the beginning.

These contests of the *pentathlon* were divided into *serious* and *inoffensive*, into *εαρεις* and *καφοι αγωνεις*. *Wrestling* alone was referred at first to the serious; afterwards *boxing*, of later introduction, was added; and then the *παγκαλιον*, or *wrestling* and *boxing* combined: the term of *inoffensive* was applied to *running*, throwing the *discus*, *leaping*, and *jaculation*.

All these exercises, including those of fal-tation as well as the proper gymnastics, were modified according to three different purposes. Thus Galen divides the whole of gymnastics into the *warlike*, *injurious athletic*, and *truly medicinal*. The last might with equal propriety have been termed the *pedagogical*, as it constituted such an important part of education among the greeks. When very severe censures of gymnastics occur in ancient writers, they relate to *athletics* alone, which are as little to be defended as modern *boxing*, or the baiting of animals practised in various parts of Europe. In a fragment of Euripides it is said: ‘among the thousand evils of Greece the worst is the race of athletes.’

Galen

Galen * applies to their art the epithet of opprobrious, and speaks against it in many places with great asperity †.

These strictures include at bottom the obvious proposition : *pursue gymnastic exercises to lengthen life, but do not live solely to pursue gymnastic exercises.* The latter was done by the athletes, who, according to Seneca, spent the whole of their days between oil and wine, in anointing their bodies preparatory to the contest, and drinking after it was over.

I now proceed to describe the *exercises* themselves : and first of those that are *properly gymnastic.*

* Ad Thrasibulum, c. 36, 37, 46.

† ‘ Undoubtedly every well ordered republic hates and detests this sort of art, which depresses all vital strength and energy, inducing no healthy state of the body, &c. L. c. cap. 46.

CHAP. II.

LEAPING.

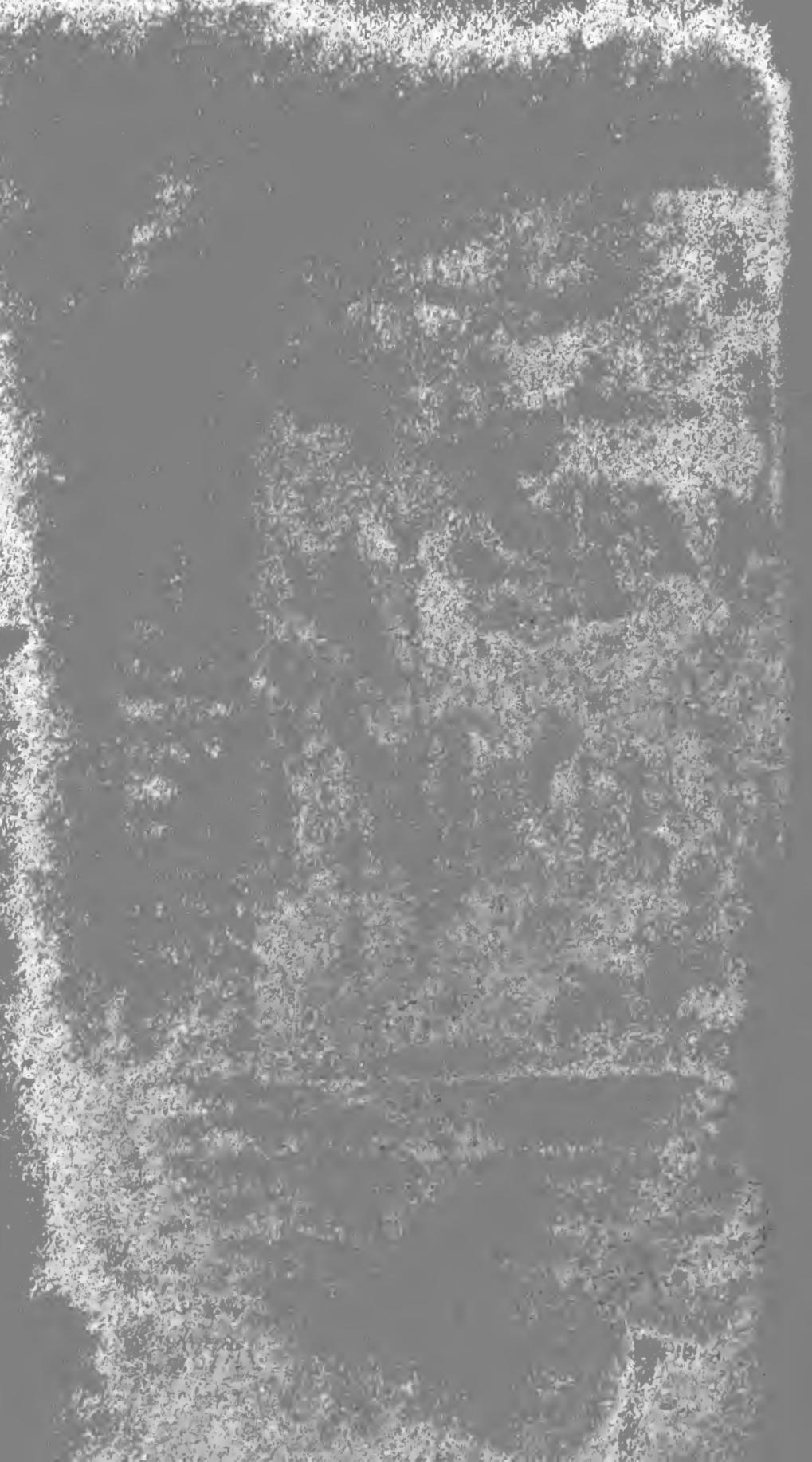
LEAPING ranks among the most excellent of the gymnastic exercises: it strengthens and gives elasticity to the feet, legs, knees, thighs, and indeed the whole frame; it braces every muscle, invigorates the courage, incredibly improves the faculty of measuring distances by the eye, and gradually imparts such a command over the balance of the body, as tends greatly to secure us from all hazard of any dangerous fall. In common life, too, where brooks, ditches, and a thousand obstacles, may be passed by a leap, the art is of no small utility. Our boys will not cry, when they come to a rivulet, but jump over it: resolution will make a part of their character, when they are grown up to men.

Practice of the ancients. Leaping, $\alpha\lambda\mu\alpha$, was a gymnastic exercise of the greeks, and commonly reckoned among the pentathla. It was employed too, probably, as preparatory to war. They leaped either without loading the body in any manner: or they held in each hand a leaden weight, fastened to a leatherne
thong,



The Leap in Height, with & without a Pole.

Published by Johnson in St Paul's Church Yard, London, Feb 1800.



thong, *αιληρ*; or sometimes a small, at others a large, plate of lead. Occasionally, too, they loaded in this manner the shoulders, the head, or the feet. It has been supposed by some, that these weights were employed instead of a ropedancer's pole, to preserve the balance of the body more easily, or rather to give more force to the leap. Arguments in support of this opinion are to be found in some ancient writers; for they assert, that the athletes could leap better with these weights in their hands, than without them: but surely this was not always their intention; for when they fastened these lumps of lead on their heads, on their shoulders, or to their feet, it must have been unquestionably to render the exercise more difficult, and he was declared victor, who could leap best with the greatest load. Probably, too, there was somewhat of a medical purpose in it: the exercise was rendered more laborious, to increase the bodily exertion.

For the rest, leaping was either in height, depth, or length. In the last case, the point from which the leap commenced was called *βαληρ*. Several leaps were taken one after another, and the contest probably was, who should soonest arrive at the goal, *εσχαμψενα*, or beyond it: possibly, too, the leaps were

counted, and he won, who advanced farthest in a given number of leaps: [or rather, perhaps, as in the latter case no goal would be necessary, the point was, who should reach the goal in the smallest number of consecutive leaps]. There were other kinds of leaping practised, too; as, for instance, the jerking out the feet backwards; trotting, or hopping with changing legs; and leaping on a skin filled with wine, and besmeared on the outside with oil. But to the *modern practice of leaping*, which may be thus divided:

I, without any assistance, but merely by the exertions of the body and limbs: or,

II, by means of a long staff, a leaping pole. Each of these may be performed

- a. in height,
- b. in depth,
- c. in length,
- d. in height and length at the same time,
- e. in depth and length at the same time.

Consequently there are *five species* of leaping.

I. a. *The leap in height, without a pole.*

1. *Preparatory exercises.* In this leap, the whole weight of the body is to be moved to a height from the ground, which requires energy in the feet, calves of the legs, knees, and

and thighs. To strengthen these, the following exercises are to be employed.

α. Hopping. Let the pupils stand in a line, about a step distant from each other, with the breast advanced, and the palm of each hand placed flat against the hip joint of each thigh. The gymnast gives the word of command : *prepare! begin!* and immediately they commence the exercise, which consists in lifting each foot alternately, without stirring from the place, and clapping the thighs with the hands at the same instant, all exactly keeping time. He who does not accurately perform each motion is not master of his exercise. He who quits his ground, does not preserve his posture, or fails in keeping time, performs it faultily. The gymnast must attend to all these points. To animate the performance, a prize may be proposed, to be gained by him who holds out longest in performing the exercise exactly. This exercise was not unknown to the greeks : they called it *πηδαν*. It was frequently practised by the spartan women. Similar to this is

β. The ballotade. Every thing said of hopping is equally applicable to this : but here, instead of lifting the feet alternately, they are both raised at once with a quick jerk, so as to strike

strike against the posteriors. This exercise is far more violent than the preceding. The greeks gave it the same appellation of *πηδαν*.

γ. Hopping on one leg. This very simple exercise ranks among the most violent. To continue it for any time requires great exertion; and, like the two preceding, serves particularly to strengthen the lower limbs. It is easily rendered interesting by emulation. We select a spot of pretty level ground, a few hundred paces in length, in the place appropriated to our exercises. The gymnast ranges his pupils, as before, in a line: he prescribes the leg on which they shall hop for that time, and gives the word to march. Immediately they all set off upon one leg: presently one gives out; soon a second is tired; then a third; and so on. The inexpert frequently cannot advance above the little distance of thirty steps: on the other hand, I have frequently seen robust, experienced boys hop on above eight hundred steps, over hillocks, holes, and wheel-ruts. Standing still is not allowed: or, if it be for a time, the leg on which they hop is alone to be permitted to touch the ground. He is the conqueror who proceeds farthest, or who soonest reaches a given line. This exercise is frequently practised

tised with regard to time alone; when the pupils do not quit their ground, and he is the victor, who holds out the longest. It is to be observed, as a general rule, that, after one leg has been exercised, the other must take it's turn.

The former two of these elementary exercises have a great resemblance to two others, the *skipping over a string or a rope*; but as these have different objects, they must be deferred to a subsequent part of the work. I shall farther remark, that the three exercises abovementioned are not to be considered as *merely* preparatory; for they will always remain genuine gymnastic exercises in themselves.

2. The *leap* itself. *Preparation.* The *place* must be smooth ground for the length of twenty paces at least. It is not amiss, if it be shaded by trees; for then the pupils will not be so soon fatigued: but it is also well, to have a place without any; as this will inure them to the heat of the Sun. The ground should have a very gentle declivity towards the place of the leap, as this favours the execution of it: but it is likewise proper, that the gymnast should occasionally set his pupils to leap in the opposite direction, that they may be sensible

of the effect of the power of gravitation. If the pupils leap with a brisk run of ten or fifteen paces, no part of the way must be slippery; but least of all the place from which they begin their run, and that from which they rise to their leap. At both these places the ground should be strewed with rough sand, which will give a secure hold to the feet. A larger portion of sand should be laid on the place where they pitch after leaping, that they may not receive too violent a shock, when their feet come into contact with the ground.

The object to be leaped over must be so contrived, as not to be any hindrance to the free movement of the leaper, otherwise he would be liable to break his shins, or hurt himself in some way or other. We employ for the purpose the slight machinery represented Plate I, fig. 1.

A B, C D, are two leaping posts, ten feet high, provided with feet, B, D, by which they are supported. The posts are marked with a narrow notch across at the distance of every foot: and each foot, from the second upwards, is subdivided into six parts, of two inches each, by holes bored through the post. a b is a straight rod or bar, not thicker than a man's thumb at the utmost, and rests on two iron

iron pins c d, which are pushed into the holes. Thus, the bar can be raised higher and higher, two inches at a time, to regulate the height of the leap as may be thought proper. As the bar is not fastened to any thing, but gives way at the slightest touch, it affords an obstacle by no means dangerous; and as the height of the leap may be ascertained by feet and inches, the progress of the pupils is easily observed. The bar a b, which is best made of the stem of a young fir-tree, should be at least nine or ten feet long, that the posts A C may be placed seven or eight feet distant from each other.

A long white string is still preferable in many respects to the bar: for it is not so easily broken, and the distance between the posts may be increased as much as you please, which is an advantage. A leaden weight is to be fastened to each end of the string, to stretch it tight as it hangs over the two pins c d. This weight should be surrounded with hair or wool, and then covered, that it may not do any injury to the leaper, if he should fail of clearing the string.

The exercise.

a. First kind. The standing jump. If you would jump with a run of fifteen or twenty

paces, the interval must be measured and divided into the due number of steps by the eye, to which an art not yet acquired by the beginner is requisite. He will find it out, indeed, if he be not altogether inexpert: but, from attention to this, he will be apt to miss the proper place and mode of rising to his jump, and get a habit of jumping awkwardly. It is proper, therefore, to let the jump be practised without running at first; and this mode of jumping should never be neglected by the most expert. The performance is sufficiently easy. The leaper places himself two steps from the bar. This point we shall call *a*; and the space between him and the bar, *b*. He leaps, with both his feet close together, from *a* toward *b*, on his toes. This preparatory spring serves to call their elasticity into action, if I may so express myself. From *b* he rises instantly, and springs over the bar. This is not so easy, if the preparatory spring be omitted.

3. Second kind. The running jump. The master gives the word, *prepare!* At this the leapers place themselves ten or fifteen steps from the bar. At the word, *proceed!* the foremost begins his leap with a run. If the bar be not high, three or four may leap over

it at once. When all the pupils have leaped over it, the bar is raised higher and higher by degrees, and such as fail to clear it are set aside. If the leaper strike the under side of the bar with his toes, it is a failure; if he merely touch the bar with his feet, lose his balance, or neglect to preserve the proper position of his body, the leap is termed *foul*: on the contrary, when no one of these faults is committed, it is called *clean*. An indifferent leaper clears a bar only the height of his hips; a good leaper, one as high as the pit of the stomach: and this may be accomplished with tolerable ease by any active youth. There are many, who acquire the ability of clearing a bar as high as their shoulders. Thus the leapers may be arranged in classes according to their ability.

In learning attention is to be paid to the following *rules* and precautions.

1. At first the standing jump must be practised chiefly; and the teacher must see, that the beginners raise their feet and knees in a straight direction, not separating the legs from each other, or inclining them to either side. For this reason beginners must never attempt to leap over heights beyond their powers, else they will acquire a habit of such faults.

2. The run must not be too long; otherwise it will fatigue the leaper to no purpose. Ten steps, and often less, are sufficient. The first steps are a deliberate tripping on the toes, gradually quickened, and most violent at the last. Too long steps diminish the power to be excited at rising, and setting off with too much speed occasions an arc of too great a circle to be described in jumping, which diminishes the height of the leap.

3. As the chord of the arc described in leaping increases in proportion to the height of the leap, the higher the leap is to be, the farther from the bar must the leaper rise to his jump.

4. In rising the body must never be inclined backwards, but always forwards, as it was at the beginning of the run; and the leaper must not pitch wholly on his heels, but chiefly on the toes and balls of the feet, that when he comes to the ground he may not receive a shock through the whole length of his backbone. This is an important rule, applicable to almost every kind of jump without exception.

5. The teacher must place himself sometimes a few steps before the bar, sometimes on one side of it, to observe the leapers.

Variations. Leaping admits of great variety, which is very necessary in this, as in all other gymnastic exercises, to maintain and animate the ardour of youth. I shall mention a few modes of diversifying it, to which others may easily be added.

An apple, or any thing else you please, may be suspended over the bar, to be caught by the leaper. Or the bar may be removed, and the apple caught, either in a standing jump, or a running jump. The leaper may be required to turn round from right to left, or from left to right, in the air, as he passes over the bar. Instead of running, the leaper may hop, and clear the bar on one leg; or he may hop over it standing. The hands of the leaper may be loaded, to render the jump more difficult. A couple of bags, filled with sand, are the best substitutes for the grecian poiſers ($\alpha\lambda\etaρες$). Lastly, the leaper, instead of jumping over the rod, may jump through a hoop, held before him with caution, that is loosely.

y. Vaulting. It is not easy to give a short description of this exercise, which shall be sufficiently clear, to enable any one to practise it. Tolerably voluminous books have been written on the subject; and I think it unnecessary

cessary to delineate the vaulting horse, with it's stuffed leather seat, or the various leaps practised with it, of which there are no small number. The fundamental part of this exercise consists in placing one or both hands on a fixed object, as a wooden horse, and throwing one leg over it in leaping so as to bestride it, or throwing both legs and the body quite over it ; which may be done either standing, or with a run. Any one who has practised this mode of leaping, or seen it performed, may readily invent exercises for it ; and he, who has not, would not easily understand any delineations of it. Fortunately it is pretty well known, as it is taught in most universities, or wherever there are riding-schools ; for it is usually considered, and with justice, as a part of horsemanship. In the education of youth, however, it is sparingly introduced into a few places, probably because it is considered as dangerous. But this I can deny from experience, against which nothing can be said : for I have daily seen it practised by boys and youths for a long time, who have attained such a degree of expertness at it, as astonishes spectators not accustomed to it, yet not one of them ever received the least injury from this exercise. I am convinced, that it is scarcely

scarcely possible, to acquire by any other mode of exercise, what may be accomplished by vaulting; and that strength and pliability of body, courage and presence of mind, preservation of equilibrium and accuracy of eye, are promoted by it in an extraordinary degree: whence I cannot but wish, that this exercise may by no means be omitted in a plan of physical education.

Some of the most simple and useful modes of this kind of leaping I have introduced into my gymnastics, and they will be found farther on, in the section on balancing: here I must pass them over, as the description of the steps preparatory to them cannot be given in this place. One species of vaulting, however, must not be omitted here; which is

a a. Leap-frog. This exercise, from its continuance, requires considerable exertion, and is very pleasing to youth, as it commonly affords much occasion for laughter. It promotes bodily dexterity, and calls for some degree of courage, when a leap of tolerable length, as upwards of five feet, is requisite.

The teacher places the company, which should consist of boys nearly equal in height, in a row, one behind another. Let these be represented by a, b, c, d, e, f, g, h. Each

places his hands on his knees, and thus stands in a bent position. The hands are to be so placed, that the thumb may rest on the inside of the knee; the elbow must be kept straight; and the chin must rest firmly on the breast. If the company be expert, a clear space of one stride between the head of each boy and the hinder part of the one before him is sufficient; if not, the distance should be two strides. The exercise consists in the hindmost leaping over all those before him, one after another. A begins. Taking a short preparatory spring, he places both his hands gently on b's back, and leaps over him straddling in such a manner, that one of his legs passes on either side of b, whom he touches with no part but his hands. Having leaped over b, he makes another preparatory spring between b and c, and leaps over c in the same manner. While a is leaping over d, b leaps over c, and thus they all follow in turn. Every one, as soon as he has leaped over all in the row, places himself at the end of it in the same stooping position, for the rest to leap over him, so that a will stand before h, b again before a, and so on. If the company be expert, and stand only one good step distant from each other, the preparatory spring is unnecessary,

cessary, and the leaper continues to the end of the row without intermission. In this way the exercise proceeds with great quickness, and affords much amusement. To acquire expertness in leaping high this way, the exercise must be performed by two only. These gradually stoop less and less, till each is able to leap over the other standing perfectly upright.

Precautions. The teacher must not allow big and little boys to exercise together; as from this the former could derive no benefit, and for the latter the pressure of the hands might be too much.

When the leap is to be increased, before the party is completely master of it, the teacher should place himself by the side of the boy to be leaped over, in order to catch the leaper, if he should fail.

II. a. *The leap in height with a pole.*

This kind of jump requires much more courage, accuracy of eye, and equilibration of the body, than the preceding. It exercises likewise the muscles of the breast, shoulders, arms, and hands, which were inactive in that, vaulting excepted.

Practice of the ancients. I can find no mention of this exercise in any work on antiquities;

tiquities; yet, that it was practised by the ancients, is evident from a passage in Ovid, where Nestor, to avoid the calydonian boar, leaps upon the branch of an oak by the help of his spear*.

Present practice. Preparation. This exercise is performed in the same place as the leap without a pole, and with the same apparatus, with the addition of a pole, from seven to ten feet long, not too heavy, but of sufficient strength to support the weight of the leaper, as he jumps over the bar,

Exercise. The body, supported by a pole, is to be swung over a given height. To effect this, the leaper grasps the pole with both his hands, the right hand at the top, the left some distance below it, as in pl. 1, fig. 2. In leaping the left arm supports the weight of the body, the right serves to draw it up. The leaper takes a smart run of ten or fifteen steps, in proportion to the height, places the lower pointed end of the pole straight before his feet, neither to the right nor to the left, one

* 'Forfitan et Pylius citra trojana perisset
Tempora: sed, sumto positâ conamine ab hastâ,
Athoris insiluit, quæ stabat proxima, ramis:
Despexitque, loco tutus, quem fugerat, hostem.'

or two feet on this side of the bar, gives a good spring from $x\ x$ with his feet, which he assists by raising himself with his hands, and swings himself to $z\ z$, in the curved line y , or, if the pole be of longer dimensions, in the curve o , or p . The leap is represented in fig 3 by simple lines. The bar is represented by $a\ b$, the pole by $c\ d$. The hands placed at $A\ A$ form the fixed point, round which the body of the leaper turns; and this consequently comes into all the positions marked with the lines $A\ B$, till at length it reaches $A\ C$, when the feet again incline downwards from C , and come to the ground on the other side of the bar. The face of the leaper is now turned toward the place from which he rose; if it be not, the leap is faulty, of which more will be said below.

But what becomes of the pole? Either the leaper, when he begins to sink from the position $A\ C$, lifts it over the bar; or he pushes it back with the right hand, so that it may not fall on the bar; or he does neither of these, but leaves it in its perpendicular position, and, catching hold of it beneath the bar the moment his feet touch the ground, draws it under it. This requires by far the most dexterity.

An

An indifferent leaper cannot pass a bar higher than himself: he may be said to leap well, who is capable of clearing a bar as high as he can reach with the points of his fingers: but many learn to exceed this. Hence we have a standard for classing the leapers. I have seen many boys and youths leap over a bar from two feet and half to three feet two inches higher than their own heads, and one of five feet two inches high clear a bar eight feet four inches from the ground.

Rules for learning and precautions.

1. Beginners must commence with leaps of no great height: It is not necessary to make them leap over a given height: it is enough, if the learner raise himself with the pole, and describe a semicircle round it with his body. In these trials the teacher must take care, that the leaper always places his pole straight before his feet.

2. In this exercise, in which the body is swung half round the pole, the leaper must not pitch in the direction in which he rose; but he must turn himself round in leaping, so that, when his feet come to the ground, his face must look toward the place from which he took his rise. This turning will appear very natural, if you follow the movement of

the

the body in idea from *x x* to *z z*, in fig. 2. It is likewise of great advantage: for when the body, which will be somewhat bent, comes to the position *A C*, fig. 3, the belly will be downward, and thus the leap is more easy, and there is less danger of touching the bar, than when that part of the body which bends outward is next to the bar, as if the leaper intended to sit down upon it. In consequence of this turning, too, the feet strike the ground with much less violence. Practice will render this rule perfectly clear.

3. Almost every thing depends on the length of the pole from the lower point to the left hand being duly proportioned to the height of the leap to be performed. If this part, *a b* fig. 2, be taken too short, it will be difficult for the leaper to clear the height: if too long, more power must be exerted, than the leap required. I have found, that this part of the pole should be taken from six to twelve inches shorter than the height of the bar. Thus a height of six feet may be cleared when this part of the pole equals five feet six inches, or only five feet: indeed it may be done if the whole length of the pole be scarcely six feet.

4. The

4. The run should be ten or twelve steps, beginning gently, and increasing it's velocity. The pole should be placed on the ground one or two feet before the bar, according as it is higher or lower. In rising the knees and hips should be bent: when the leaper is at his highest elevation, the whole body should be nearly straight: and he must pitch, as in all kinds of leaping, upon his toes.

5. The pole must not be cut out of a plank, as it would be liable to break; but it must be a single stick, slender and light, but strong. Consequently a young fir is the best for the purpose. The lower end must be sufficiently pointed, and the ground soft enough, to admit of it's entering a little way into the earth.

I and II. b. *The leap from a height, with and without a pole.*

Little is necessary to be said, I apprehend, on the utility of this exercise; which is sufficiently evident, when the many occurrences in life, that may require it, are recollected. Fire may drive us out of a window: an unexpected shock, compel us to leap from a height: horses taking fright may oblige us to seek our safety by jumping out of a carriage. Unaccustomed to such exertions, an arm or

leg

leg is frequently broken. I have often seen boys leap down a height of nine feet without injury; and I have known an unpractised youth fall from a height of three, and break his collarbone. And certainly the most important end of gymnastics is promoted by this exercise, for it eminently requires courage and presence of mind.

The object is, to accomplish the highest leap possible, with the least violence to the body. This depends on the quality of the ground, which ought to be sufficiently soft or springy, and on the management of the body itself. For this purpose a place should be chosen covered to some depth with sand, or a soft, moist sod. For the height, a ladder, or a portable set of steps, is sufficient for the expert: but a sandy hillock, on the exercise-ground, cut through, and its perpendicular side used to leap from, is preferable. With this the exercise may be begun near the foot of the hillock, and the leaping place gradually advanced nearer and nearer to the summit. Thus the leap may soon be carried to the depth of nine feet or more, and due equilibrium of the body preserved. But we do not rest here: if the place be so contrived, that we can lay hold with our hands, as in leaping from the lowermost branch of a tree, out of a window, or

the like, we do this, let the body hang down, and thus gain four or five feet.

In leaping down, the body must be bent together a little, in order that the shock may not be communicated in a right line through the whole back-bone. For the same reason, the leaper must not pitch upon his heels, but on the balls of the toes. This nearly supplies the want of elasticity in the ground.

This kind of leap is much easier with a pole. To slide the hands down the pole during the leap, and thus diminish the height, is an art easily acquired: at the same time the effect of gravitation on the body is very much diminished.

One of the most general precautions in gymnastics is: *not after meals*. Of this I shall speak hereafter: but I must here more particularly urge the caution, never to leap down from a height on a full stomach. Particular care must be taken of the tongue, too, in this exercise.

I and II. c. *The leap in length, with and without a pole.*

This exercise, also, is well adapted to young persons. It stimulates their courage, while it strengthens their muscles, particularly those of the legs and thighs, and gives agility

to



The Leap in Length, with & without a Pole.



to the whole frame. For our place of exercise we choose soft ground, somewhat moist, and well-covered with grass, or a sandy soil. We mark the place of the rise (*terminus a quo*) by a white rod, or some other conspicuous object; and the distance to be attained (*terminus ad quem*), by another. The master settles how far they shall be apart, which at first may be five feet. He places the leapers at first a few steps from the nearest rod, gradually increasing the length of the preparatory run as far as fifteen steps. The pupils leap one after another, till they have all cleared the rods. The master then places the farther rod a foot or two more distant, the leap is repeated, and thus they go on. When the pupils have carried this leap as far as they can, which is commonly to three times the length of the leaper, within half a foot, or a foot *, the same exercise may be repeated with the leaping-pole. The proceeding here is exactly the same as in the high leap with the pole, only the arc described is made as long as possible.

To render this leap more serious, we sometimes repair to the brook, that winds through

* An expert youth, five feet high, usually leaped fourteen feet and half, or fifteen feet.

our play-ground, and leap over it in different parts, from the higher bank to the lower, and from the lower to the higher. As boys are not fond of being wet through, every one here takes care not to make a false leap. The most expert always begins: the rest emulate him, exert all their powers in the preparatory run and subsequent leap, and acquire confidence when once they have succeeded. Thus more is accomplished here in general than on dry ground; and I have seen many boys leap farther than three times their own height *.

Lastly we have recourse again to the pole. Its length must be somewhat more than in the high leap, depending on the distance to be cleared, the depth of the water, and height of the banks. Twelve feet may be a sufficient length. The pole is to be held in the usual manner: the leaper takes a brisk run, sets his pole a little beyond the middle of the brook, and swings himself in an arc of a large circle to the opposite bank. By pressing the hands upon the pole, you may raise the body so high, as to swing nearly over the end of the pole. The more this is done,

* The boy mentioned above, who measured five feet, leaped sixteen.

the greater the elegance of the performance. In coming down, it is easy to throw yourself a foot or two forwards, by moderate pressure against the pole with the hands, and thus increase the length of your leap. In this exercise, it is necessary, to measure the distance accurately with the eye, and be pretty well master of the balance of the body, which swings supported on a single point. Few learn to draw themselves up sufficiently with the pole; but it is practicable, to climb higher on the pole, by means of the hands, during the leap, and thus obtain a greater length of radius. I have had the satisfaction, however, to see several boys leap a distance, in this manner, nearly equal to four times their height*.

Both these leaps, with the pole and without, may be performed without any run. Without a pole, the feet are placed close together, the body is inclined forward, and the leaper springs away. With the pole the proceeding is the same,

Precautions. 1. The ground, on which the preparatory run is taken, must not be slippery: the place from which the leap is made

* The boy mentioned before has many times cleared one and twenty feet.

must in particular be firm, and that where the leap ends must be soft.

2. The leaper pitches chiefly on his heels; as, if he were to pitch on his toes, after a powerful leap, he would be in danger of falling on his nose: but as the body is bent in this leap, the shock is not communicated through it in a straight line. The leaper must accustom himself, likewise, not to stop the velocity his body has acquired at once, on the spot where he pitches, by standing still; but rather allow himself to take a few gentle springs forward, till the acquired velocity is expended. This can be done, however, only where the ground will admit. In leaping over a brook it is often impracticable, and in this case the leaper should pitch more on his toes.

3. In this leap, as in all exercises of this kind, it is absolutely necessary, to rise with both feet together, and not to make a stepping jump, in which one foot goes before the other. This is dangerous, and must not by any means be allowed.

4. When this leap is made with the pole, it is not necessary, to swing the body round, as in the high leap.

a. Variety. The continued leap.

If

If we would imitate the ancients, we choose a tolerably long, even course, and mark out the place from which to start. Here the young competitors assemble, and one of them begins. Having placed his feet, close to each other, on the appointed spot, he swings his arms backwards and forwards, his body a little bending, and at the most convenient moment springs forward as far as he can. From the place to which he comes he renews his leap, without stopping, and thus he proceeds. All the rest follow him. The goal may be fixed, and in this case he who reaches it with the fewest leaps is victor: or it is not fixed, and the prize is obtained by him, who advances farthest in a given number of leaps, or by him who takes the greatest number of leaps in succession. In the last case attention must be paid, that a proper degree of exertion is made in every leap. This exercise is fatiguing to the muscles of the thighs: fifteen or twenty leaps breathe a person. To bring other muscles into action, this continued leap may be performed backwards likewise.

I and II. d and e. *The leap in height and length, and in depth and length, at the same time.* All these kinds are only slight variations from the former, but naturally require more ex-

ertion, as the difficulty is double. The preparatory run must be executed with more force, if you would leap far and high at the same time. For this purpose we use the leaping posts mentioned above, with the string, or bar, and perform the leap, either with the pole, or without it. The point of rise is determined of itself, from the nature of the exercise; but that which the leaper is to attain must be marked by a line drawn on the ground, which will determine the length of the leap *.

The leap in depth and length likewise requires a brisk run. This belongs to the most violent exercises, and cannot be undertaken

* It appears to me, that this rule should be reversed. To pass over a bar of a given height, and reach a given distance beyond it, the leaper must rise a certain distance from the bar it is true: but it is equally true, that, if he rise at a given distance from a bar of a given height, and leap over it, he must pitch at a certain distance beyond it. Merely as an exercise the difference may not be much: but as the principal case, in which such a leap can be of practical utility must be, where a person wants to attain a given height from a given distance, I think, that the point of rise should be fixed, and this and the height of the bar be the objects of the leaper's attention. Still it would be best, perhaps, to employ both modes occasionally; sometimes fixing the point of rise, at others the point to be attained. T.

with

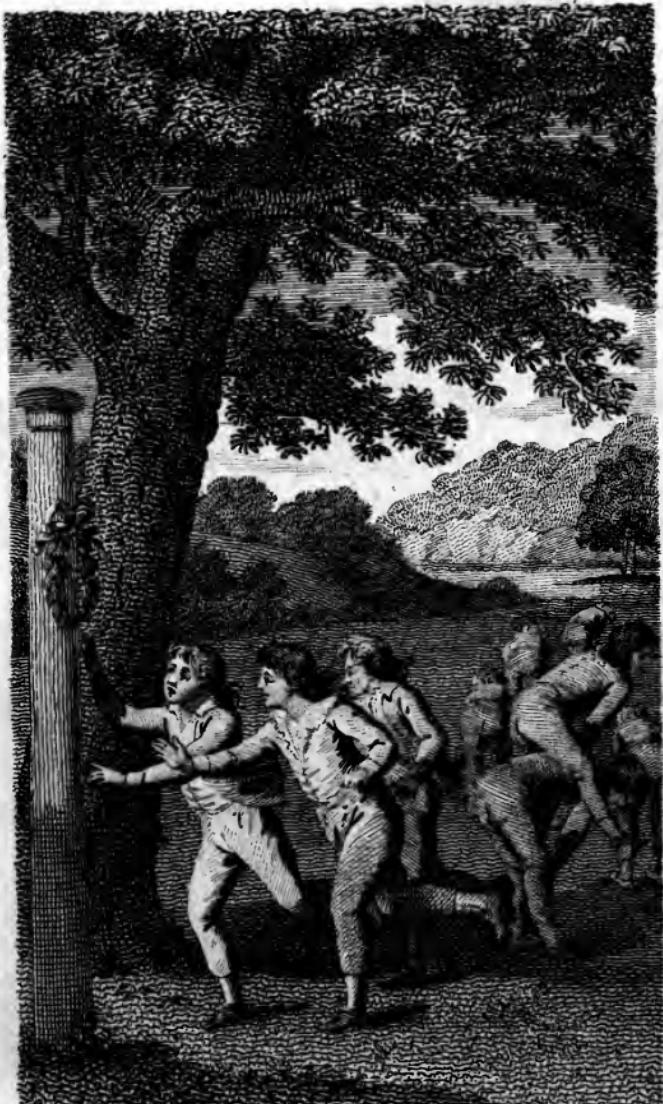
with safety, unless the ground that receives the leaper be made perfectly soft with hay, straw, or some other material. This leap also may be performed with or without a pole.

He who is expert at the preceding exercises will know how to perform these advantageously.

CHAP. III.

RUNNING.

AMONG the means, which Nature has bestowed on animals in general, for the preservation of life, *running*, says Mercurialis, is the most important. Since then it is pointed out to us by Nature, it must be in a high degree natural and innocent. It is very singular, therefore, that we should apparently do all we can, to make our children unlearn the art of running. Our earliest physical treatment of them seems calculated to destroy their aptitude for it; in a little time, it is too often the case, that the boy scarcely dares look as if he wished to run, we prohibit it so strongly as vulgar: and when he is more grown up, Mannerliness steps in, and prohibits it altogether. Medical prejudices and our own convenience contribute likewise their share, and never allow our children to acquire a faculty, innocent in itself, and necessary to every one. It is possible, that a person may get a consumption by running; but the fault is not in the exercise, it is in the person himself, who runs without having practised. Negroes and other



Running & Leap-frog.

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other men in a state of nature run daily in pursuit of animals for food, with a degree of facility, at which we are astonished : but they are not more liable to consumption, I believe, on this account, than the beasts that are famed for swiftness.

The body of no animal seems better formed for running, than that of man. The nobler parts, which might suffer from an immoderate influx of blood, are uppermost ; and the laws of gravitation itself assist in propelling the runner forward. He has nothing to do, but to strengthen his feet and thighs by practice, and accustom himself to speedy motion, and there is nothing very laborious in the exercise, as I am convinced by unquestionable experience. Indeed, I believe, I may venture to assert from experience, that it is very beneficial to the lungs ; and that perhaps there is nothing better, to strengthen the lungs of those who are short-winded, than gradually habituating themselves to the exercise of running. ‘ As soon as young children are expert at walking, turning, and the like,’ says the sagacious Frank, ‘ running races, with proper precautions, is an excellent exercise for them.’

In short, the principal objects of this exercise are, to strengthen the lower limbs, and more particularly the lungs.

Practice of the ancients. Running, *δρομος*, the most ancient exercise, as well as the most natural, was so highly esteemed by the greeks, that Homer observes, no man could acquire greater fame, than that of being strong in his hands and feet; Plato recommends running not only to men and youths, but to great boys and girls: Seneca, who expresses his disapprobation of athletics in pretty strong terms in his fifteenth epistle, notwithstanding recommends running to Lucilius as an exercise; and the olympiads were distinguished by the names of those only, who were victors in the race. The course of the ancients was called the *stadium*, because a *stadium*, that is 125 paces, about 200 yards, was the measure of it's length. The starting point was called *αφεσις*, *βαλεις*, &c.; the goal, *τελος*, *σκοπος*, &c. The ground was covered with sand; and the competitors were naked, as was customary in all the gymnastic exercises. They, who entered to run from one end of the stadium to the other, were called *stadium-runners*, *σταδιοδρομος*; others ran from one end to the other and back again, and consequently the distance of two *stadia*,

stadia, whence they were called double stadium-runners, *διαυλοδρόμοι*. The length of the course here could occasion little difficulty, so that all depended on swiftness. To try the continuance of the runners, the distance was increased, by running over the course several times forward and backward. Thus was produced the longest course of the grecian runners, called *δολιχος*, which consisted, according to some, of twelve stadia, or 2400 yards, according to others, of twenty four stadia, or 4800 yards, making about two miles and three quarters. This was considered as extremely arduous.

For the race the stadium was not always employed, but sometimes the open fields, where hills and vales diversified the plain ground. Sometimes, too, the runners were completely clad in armour, and then they were called *σπλιτοδρόμοι*.

In Galen I find a particular kind of race in the stadium mentioned. The grecs called it *εκπλεθρίζειν*. A sixth part of the stadium was marked off for the course. This the person ran over forward and backward, without turning round, gradually diminishing the distance of his run each time, till at last he had but

but a single step to take backward and forward *.

Present practice. In the first place we mark out the course. Two trees, the distance between which we know, are sufficient for our purpose. The length of the ancient stadium was 200 yards, and our course may be the same. The exercise itself may be performed in two ways, with a view to speed, or to continuance.

I. *The contest of speed.*

When the race is to depend on *speed*, the master places his pupils, if he wish to exercise them all at once, in a line, by the first tree. If they be not all equally expert, he arranges them according to their abilities, and places the weaker a few steps forward, that the stronger may not win too easily. All stand still in their places, while he proceeds to the end of the course, whence he gives the appointed signal for starting. All strive with

* ‘Est autem εκπλεθιζειν, cum in plethro, i. e. in sexta parte stadii, quis prorsum retrorsumque vicissim, idque saepe, in utramque partem sine flexu cursitans, unoquoque cursu breve quiddam de spatio demit, quoad denique in unico gressu constiterit.’ Galen. de Tuend. San. lib. II. cap. 10.

incredible

incredible eagerness to win the prize, which consists of a slender twig from the last tree.

Or the master arranges the whole line in classes, according to each boy's swiftness in the race, with which he is well acquainted. All stand in a row, but only those of one class run at a time, on the signal's being given. Thus equals contend with each other.

Or, if he be desirous of distinguishing the good runners, and stimulating the bad by a sense of shame, he arranges them according to their tallness, and places all those, that are of the same height, in one class. The signal is given to one class after another; and the victor rewarded at the end of the race.

Hitherto they are only stadiodromes, or runners of a single stadium: by degrees they accustom themselves to the double stadium, running round the second tree, and returning to the first. In time they learn to run over the ground forward and backward more than once.

Young people love change: they must be excited to exercise therefore in various ways; for no one should experience compulsion, every thing should be done with pleasure.

To prevent these exercises from becoming too familiar, the master sometimes exercises his

his pupils separately, noting by his watch the time each takes to run a given distance, and he is declared victor, who runs over the appointed ground in the shortest time,

II. *The contest of continuance.*

This is one of the most violent corporal exercises. Even the greeks considered their long course, *δολιχος*, as an arduous task, not to be attempted lightly. All, however, depends on advancing by degrees, so as to give the young aspirants that strength in their legs and thighs, which they could never acquire by sitting still.

Nothing in general can effect this in a manner more conducive to bodily health than long walks in winter, when the air is pure and bracing, and the cold excites quickness of motion. Let us not deprive our youths of a benefit, which Nature gratuitously offers them. I am persuaded, no season has a more beneficial influence on the health than winter. We destroy this by continually indulging in the heated air of our parlours, collect materials for vernal diseases, and then ascribe these to the weather.

By walks of this kind we have brought boys of eight years old to be able to make a journey of nine miles without resting. We accustom them gradually to walk quickly, but

for

for a short time: thus we have seen them keep up with us for a quarter of an hour very easily, without being fatigued, or finding any inconvenience: for running is as natural a motion as walking, but we can learn neither, without practising it; so that there are persons, who are as much tired by a walk of an hour, as Philippides was probably, when he ran from Athens to Sparta, a distance of 120 miles, in two days.

The master unites these auxiliary exercises with those of the course. He permits his pupils, to run round the two boundary trees, with a moderate degree of speed, and thus gradually inure themselves to long continued running; but he *forces them to nothing, he tempts them with nothing, he rather checks their ardour.*

On the 19th of September, 1792, I saw with great satisfaction three boys run round our course fourteen times in twenty minutes. Each run round, being accurately measured, was found to extend to 878 feet: the whole run, therefore, was 12292 feet, or more than two miles and a quarter.

In autumn, 1791, twenty two boys and youths tried their abilities in the race. One ran round the course only twice; five, three

times ; two, four times ; two, five times ; two, six times ; one, seven times ; one, ten times ; two, eleven times ; three, twelve times, that is $35\frac{1}{2}$ yards, or within a few feet of two miles ; in eighteen minutes. The three best performed, according to the most accurate reckoning, as follows.

	times	feet	miles	minutes.
A	ran round the course	14,	that is 12292, or more than $2\frac{1}{4}$,	in 21
B	-	15, -	13170, or very near $2\frac{1}{2}$,	- 22 $\frac{1}{2}$
C	-	17, -	14926, or more than $2\frac{3}{4}$,	- 24 $\frac{1}{2}$

Let this be compared with the *δολιχος* of the ancient greeks, a course of 14520 feet at most, if we take it, not for twelve stadia, which many suppose it to have been, but, with Suidas, for twenty four *, and their long races will have nothing in them at all incredible. It is probable, that they ran with far more speed ; but on this head we have nothing to afford us any information : and then they ran naked, which greatly diminished the toil.

To ease the minds of all those, who may feel any apprehensions on the subject, I shall add, that of all these twenty two boys not one

* According to Barthelemy, in his travels of Anacharsis, vol. IV, p. 78, the competitors in the race at the celebrated Olympic games ran at most twelve times the length of the course, which was about 605 feet, so that the whole distance they ran was about 7260 feet.

ever felt the least unpleasant consequence arising from this exercise; and that A, B, and C, in particular, wished to run farther, declaring, that they were neither tired, nor felt any inconvenience.

In this exercise the following rules are all that are necessary to be observed.

1. It should be practised only in cool weather; chiefly in the fall of the year, and in winter.

2. In running races the competitors should strip off all their upper garments immediately before starting, and run with bare heads, open breasts, and nothing round the neck. Indeed these parts of the body should always remain uncovered.

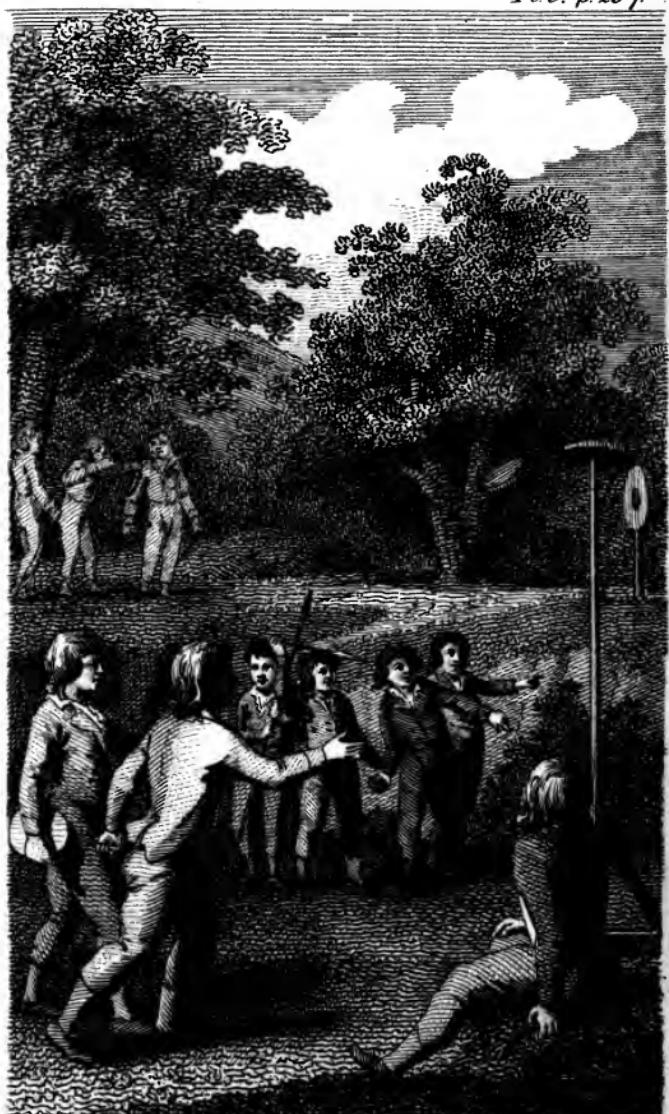
3. The runners should put on their clothes again, as soon as the race is ended, and keep themselves in motion by walking for some time. Frank advises, to let the runners walk back from the goal to the starting post, that they may not cool themselves too quickly. If they have run over the course but once, this is sufficient; but if they have been contending in the race of continuance, they must be kept longer in motion.

The determinate course is not always necessary for the race. The master chooses the

open plain, uneven sod, hill, vale, and wood: he confines himself to no road, but traverses the wood in a straight line: but he knows the ground well, that he may adhere to his general purpose, and expose his pupils to no danger. Here the boy exercises his body in a thousand ways: he acquires strength, agility, health, and the capacity of continued exertion: his mind learns to surmount difficulties, with which he could never be familiarized within doors, and to which, notwithstanding, he may be exposed in his passage through life. I must still repeat, that the best time for this exercise is winter, for which most other exercises in the open air are not adapted.

March 20, 1890.

P. M. - 10:00 A.M.



Throwing & Shooting at a Mark.

CHAP. IV.

JACULATION.

THE particular object of jaculation is, to strengthen the hand, arm, shoulder, and pectoral muscles; and when it is combined with aiming at a mark, it exercises the eye in forming a judgment of distances in a very good and amusing manner. That cases are daily liable to occur, in which it may be necessary for self-defence, is too obvious, to be urged here. History affords us memorable instances of the utility of this exercise, and the degree of perfection, to which it may be carried. Who is unacquainted with the sling of David, and the dexterity of the ancient inhabitants of the Balearic islands? Among the nations of the present day the patagonians are to be noticed as very expert slingers. According to Bougainville and others, their principal weapon consists of two flint stones, about the size of a two pound cannon-ball, bound round with leather, and fastened one at each end of a thong six or seven feet in length. These they use on horseback in hunting, and hit their mark with them at a

distance of three hundred paces with great precision.

Among the moderns Frank recommends this exercise in the following words. ‘Throwing at a mark, in places where no danger can accrue to passengers or windows, particularly strengthens the breast and eye: the smallest children are capable of this exercise: &c.’

Jaculation is performed with the hand, either immediately, or mediately, by means of some instrument. Shooting belongs to the second class.

a. The simplest mode of jaculation is universally known. We throw a stone with the hand through the air, either high, or far, or at a determinate mark. The movement of the arm for this purpose is not easily described, but every one is sufficiently acquainted with it: it must be remembered, however, that, in order to exercise the muscles of the arm and shoulder, the arm must not be kept stiff, and moved with the hand, in throwing, from above forwards; a manner very commonly practised by women and awkward throwers. To throw far and high, the stone must describe a large arc of a circle: but in throwing at a mark, the master should see, that his pupils throw only point blank, exerting the whole strength of the

the arm; unless when stones of three or four pounds weight are to be thrown in the manner of bombs at a mark. In the latter case the movement of the arm, too, is different, being exactly the same as in throwing the discus, of which we shall speak hereafter. This exercise may be rendered interesting in two ways; by varying the mark, and by contending for a prize. Sometimes we throw point blank at a perpendicular target; sometimes with heavy stones, in the manner of bombs, at a horizontal one; sometimes at a pot, placed on high; sometimes at a wooden bird, for a prize. At one time we fix the mark on a height; another time at the bottom of a steep declivity.

b. *Slinging* requires extraordinary caution. I cannot recommend it's practice to young persons in companies; but it must be so contrived, that one slinger always practises by himself, while all the rest are perfectly secure from his throw. This exercise is sufficiently known: every body is acquainted with the mode of making a sling; but in regard to using it, I must observe, that it is always to be swung round the head circularly in an oblique direction, preparatory to the throw. Every other previous movement is erroneous.

c. *Throwing the dart.* This was another of the ancient grecian exercises. It seems, like shooting with the bow and arrow, to have been practised in the earliest ages, and to be known wherever men exist. Since the invention of gunpowder, it is true, we have ceased to make use of the dart; but that force of arm, by means of which Ulysses could throw a dart, as far as a bow could impel an arrow, is sufficiently desirable, to induce us to recommend this exercise to youth.

A perfectly straight shaft, five or six feet long, or upwards, is to be furnished with a thick iron ferrule at one end, and feathered like an arrow at the other. The weight and thickness must be adapted to the strength of the thrower; the length, to his height. This simple instrument is grasped by the fingers near the middle, so as to be in equilibrium; swayed a few times, by moving the arm up and down; and thrown through the air with all the force of the arm and shoulder, seizing the most favourable moment for the purpose, at the appointed mark, which may be a target. No one, except a person that has tried this exercise, can conceive how much it contributes to strengthen the limbs. The ancients are said to have fastened a thong, apparently

a short

a short one, to the middle of the dart, in order to throw it with more force, than by using the fingers alone. This thong, however, was fastened, probably, not to the dart, but round the hand, by one end; the other being passed once round the shaft of the dart, so as to hold it fast, and let go at the moment of throwing, as the slinger lets loose one end of his sling.

d. *The bow* has always been too closely allied to the dart, to be forgotten here. The use of it is as much an elegant manly exercise now, as it was in the days of Ulysses. I know scarcely any amusement, that has more attraction for a boy. He runs and searches, till he finds an elastic maple bough, bends it, fashions it into a bow, exercises his patience by suffering it to dry properly in the air, stretches a strong cord from one end to the other, and with eagerness tries its elasticity. This answers to his wishes. He next cuts an arrow from a piece of deal, about the size of a large quill, and arms it at one end with a leaden ferrule, at the other with two feathers * glued to it.

* The old english archers were so expert in the use of the long bow, that perhaps no nation ever exceeded them. Their arrow was feathered with three strips from the quill feathers

The little apparatus is now ready. Heat or cold, wind or frost, is no longer felt by him : every thing is forgotten but the high and far flying arrow : he fancies himself a little Tell, and strives with his comrades to hit like him an apple, or to cleave the pin of the basket like a Robin Hood.

Some grave reader, perhaps, will call this trifling. Be it so : yet I must confess, that every sport, which occupies a lad, exercises his faculties, and fortifies his health by employing

feathers of a goose ; two white, the other gray, which served the archer as a mark for rightly placing his arrow. A slight groove shoud be cut in the arrow, sufficient to let in that part of the stalk of the quill to which the plume adheres. The arrow should be half the length of the bow ; the bow, equal in length to the height of the shooter, and of such a stiffness, that a strong and expert shooter can barely draw the arrow home to it's head. Yew was preferred by the english archers for the bow ; and, we are told, for the arrow likewise. The bow string was waxed in the middle, where the notch of the arrow was to be placed, that the arrow might not slip. The shooter wore on his right hand a glove, to save his fingers from being cut ; and, to defend his left arm from the stroke of the string, he wore on the inside of it, between the wrist and the elbow, a piece of smooth leather, called a bracer, fastened by straps, which buckled on the outside. The english archer drew the arrow to his ear, not to his breast. T.

him in the open air, appears to me of importance. If the force of an Ulysses be desirable, let us not despise the means, by which he acquired and exercised it.

e. *The discus.* Practice of the ancients. We find the discus in use so early, as to be frequently mentioned by Homer. Achilles exercised his myrmidons in throwing the discus and the dart. At the sacred games performed in public the discus was reckoned among the *pentathla*; and other persons, as well as the athletes, exercised with it in the gymnasia. ‘On the arena,’ says Solon to Anacharsis, in Lucian, ‘you observed a round piece of brass, in shape resembling a small shield, without strap or handle. On attempting to lift it, you found, that, from its weight and smoothness, it was not easy to hold. They engage in throwing this, sometimes high in the air, at other times straight before them, striving who shall throw it farthest. This exercise gives strength to the shoulder, and muscularity to the arm.’ Similar verbal descriptions, which occur in many ancient authors, compared with works of art, which have been preserved to us from antiquity, afford us a pretty clear idea of this gymnastic exercise.

The

The discus, or quoit, was made of metal, or stone, and had the form of a lens, that is a glass convex on both sides. It's diameter, as we may conclude from the delineations extant, was about a foot; and it's thickness, in the centre, three or four inches. Hence the great weight of these masses may be inferred: but neither size nor weight was always the same. This may be concluded from some ancient figures of discobuli, copies of which are to be found in Mercurialis and Potter: and it is obvious, that the tyro in gymnastic exercises would require a much smaller and lighter discus, than the practised athlete. In the centre we find a hole; through which, according to Potter, a thong was drawn, by means of which they gave it the proper swing. I do not know on what passages in the ancients he grounds this opinion; but Mercurialis mentions no such thing; and if the discobuli rubbed their hands with earth, to be able to hold the discus the better on account of it's smoothness, and if a rotatory motion were given to it in hurling, both these circumstances are inconsistent with the use of a thong.

The discus was thrown high, or far, or bowled along the ground, or pitched at a certain

tain object, on which the whirling discus was to fall. He was the victor, whose discus was thrown the highest, or the farthest, or nearest to the mark. The remains of antiquity, that have come down to us, show us the mode in which this exercise was performed. The arm hung down by the side: the discus rested on the four fingers, which were closed, with their ends pointing upward on the inside of it: the thumb was extended horizontally along the outside: the thrower swung his arm backwards and forwards, till he had attained the proper moment for giving it the greatest impulse, when he hurled it into the air with a rotatory motion.

Present practice. Galen admits the discus into medicinal gymnastics, we into scholastic, as a pleasing variety of the exercise of jactulation for youth. Quoits of strong, heavy wood, which are easily procured, may suffice for our purpose: and indeed these ponderous masses of metal appear to be adapted only to the well exercised shoulder of a man. In using it we imitate the ancients exactly, but without employing any thong; as it is more safe, to throw simply with the hand. If we be desirous of a mark, a stake fixed in the

ground, with a small horizontal target on the top of it, is very convenient for the purpose*.

It is particularly necessary in this exercise, that the master call the attention of his pupils to the following lines of Martial.

‘ Splendida cum volitant spartani pondera disci,
Este procul pueri, sit semel ille nocens.’

* The game of quoits is not uncommon in many parts of England. Our quoit is a circular piece of iron, a little concave on one side, and convex on the other, with a large hole in the centre. Two stakes are driven into the ground, at a distance agreed upon, which is usually such as to require some exertion on the part of the players to throw the quoit so far, and the antagonists, standing by one of the stakes, endeavour to pitch the quoit in such a manner, that, when it falls to the ground, the hole in the centre shall receive the other stake through it. Another exercise of this kind, much practised by our ancestors, was that of *pitching the bar*; which consisted in striving who should pitch a heavy bar of iron to the greatest distance. T.

Pl. 6. p. 247.



The different kinds of Wrestling.

CHAP. V.

WRESTLING.

AN aversion to this excellent gymnastic exercise, which Tertulian calls a work of the Devil, is of very ancient date; as at an early period it began to degenerate into a brutal contest, for the amusement of the spectators. Accordingly, the opinions of the ancients respecting it are much divided. Galen reprobates it altogether, and would have it banished from every well ordered state*. He was inspector of the gymnastic exercises at Rome, practised them himself, and dislocated his shoulder in the thirty fifth year of his age. Here he became intimately acquainted with the body of athletes, for whom his mind was filled with abhorrence; and no one of the ancients has depicted them in such black colours as he has, though unquestionably they had a beneficial influence on the spirit of the people. In general, it is true, they deserved the picture he drew of them; and I perfectly agree with him, in what he says respecting their mode of wrestling. Yet

* Ad Thrasibulum. Cap. 41.

I think,

I think, he ought to have distinguished between the natural exercise itself and it's abuse; and have recommended that, while he reprobated this as an object of abhorrence. Clement of Alexandria * held the practice of wrestling in disesteem; yet he recommended it's use, when employed only to strengthen the body, and promote health. His view of the subject was more impartial, and therefore more just.

It does not follow from the abuse of a thing, that the thing is itself injurious, or to be despised: and if wrestling can be practised in such a manner, as to fortify the health, render the body robust and alert, and inspire courage; if, at the same time, there be no necessity of running into the abuse of it, or giving an improper turn to the character of youth; it remains a valuable exercise to us also. This my experience confirms; therefore I recommend it without hesitation: I beg only to be understood, as recommending it on the express condition of avoiding it's abuse,

The utility of wrestling with moderation, and in a proper manner, extends to the whole body. All the limbs are exercised in it, all

* Pædagog. III, Cap. 10.

the muscles called into action; the lungs are greatly strengthened; and the circulation powerfully promoted: and if it be true, that we should form the minds of youth to patience, firmness, and courage, no exercise is better adapted for the purpose than wrestling.

Practice of the ancients: Wrestling, $\pi\alpha\lambda\pi$, was a very ancient exercise, and constituted the most important part of the grecian system of gymnastics. In this, as in several of the gymnastic exercises, men had three different objects in view; they practised it to qualify themselves for the public games, to fit themselves for the hostile encounters of war, or merely to strengthen their bodies, render them alert and hardy, and fortify their health. Thus the warrior and the athlete wrestled in a different manner from the peaceable citizen, the youth, or the boy. The former carried the exercise to excess: fractured or dislocated limbs, broken necks, and lifeless bodies, were not unfrequently seen in the palæstra, the consequence of this athletic abuse. The latter in general confined themselves within those limits, which common sense prescribes; though it must be confessed, that they too frequently overstepped them in the eagerness of imitation. The wrestling of the athletes, who commonly

adopted the most fattening regimen, that a thick covering of flesh might the better enable them to bear blows and falls, was upon the whole far from being practised by every one; though the victorious athlete received the applause of the whole nation, and a breach was made in the walls of his native town, to introduce him in triumph. These circumstances were perfectly in character to a nation, where manhood was reckoned every thing, and no value set upon feminine delicacy. If, therefore, the wiser men held up these athletic contests on the one hand as deserving contempt, they recommended wrestling with moderation on the other, as a mean of strengthening the limbs and muscles, and augmenting the vital warmth.

The ancients made preparations for wrestling, which they did not for the other exercises. The whole body was anointed with oil by the aliptes, and rubbed till it was in a glow. This operation had different objects. According to Lucian, it was performed partly to render the body more tough and supple. We inure our bodies, says he, to heat and cold, and then rub them with oil, to give them suppleness; for it would be absurd to suppose, that dead hides may be made more tough

tough and durable by inunction, and not the living skin. It was intended partly, at the same time, to render the body more slippery. When this was the object, the wrestling took place on slippery ground, covered with mud. It gave an advantage to him, that endeavoured to shun the grasp of his adversary, who had the greater difficulty to keep his hold. At other times, on the contrary, after the body was anointed, it was rubbed over with dust, and the wrestling took place on sandy ground, that there might be less danger of slipping. It may be asked, why, in the latter case, was the body first rendered slippery, and then rubbed over with sand, to counteract this effect? For my part, I am of opinion, that in both cases the oil was employed for a different purpose, namely, to prevent profuse and debilitating perspiration *.

* The anointing with oil, and strewing with dusty sand, I find noticed as contradictory in more places than one; in Hochheimer's *Systeme der griechischen Pædagogik*, 'Grecian System of Education,' for instance. When it is considered, however, that the greeks had these different purposes in view, the contradiction vanishes. If to escape from the antagonist were the principal object, no sand was employed, and the engagement took place on slippery ground: if to stand firm were the point contested, the

After this preparation the exercise itself commenced. The combatants began with handling each other slightly, each pressing or pulling his antagonist backwards and forwards, till they grew warm, then butting him with his head, thrusting him from his ground, assailing him with all his force, wrenching his limbs, shaking him, twisting his neck so as tochoak him, lifting him up in his arms, &c. This kind of wrestling was called *ορθία παλη*, because it was performed standing: and he was declared victor, who threw his antagonist thrice. Another kind was performed on the ground. This was called *ανακλινοπαλη*. Every thing was practised in this, that was in wrestling erect, as far as the posture would allow. The combatants voluntarily lay down, and he, whose strength was first exhausted, lost the victory, which he acknowledged by words, or by holding up one of his fingers.

With wrestling the athletes afterwards united the savage practice of boxing, *πυγμαχη*, which was known before the trojan war. Hence arose the twofold contest, called *παγκρατιον*, which

combatants were besmeared with dust, and encountered on the sand. The two kinds are accurately distinguished in Lucian, from whom the opinion here given is deduced.

was

was pursued to excess by the athletes, but could scarcely be considered as a part of medicinal gymnastics in the schools. No ancient physician recommends boxing in a medical view. The boxers likewise laid great stress on rendering their bodies corpulent, that they might be the better able to bear the blows of their antagonists. At first the clenched fist was unarmed. In time the noble discovery was made, that a man could strike a harder blow, if he held in his fist a ball of stone or metal. This gave rise to the *σφαγεμαχία*, or battle with balls. But it did not stop here: a thong was twisted round the hand, and to this thong was affixed a piece of iron or lead, which enabled the combatants to give each other more violent blows. The art of the contest consisted in the boxer's beating his antagonist with skill, till he sunk under his blows, or was obliged to yield. The boxers fought erect, never hugging their antagonist and throwing him down, but merely striking him: the wrestlers were not allowed to strike: the pancratiasts united the two, both wrestling and striking. On this subject I shall descant no farther, as we can derive from it no benefit.

Present practice. The weather is fair, the air diffuses the bracing freshness of spring, the

youthful spirits move with unwonted vivacity through every nerve and muscle, and here and there we see champions engaging in the mock battle in sport. Boy spontaneously tries his strength with boy, youth with youth, totally devoid of animosity, while universal gayety reigns. What can be more natural than this sort of wrestling! None but the severest Orbilius would exclaim against it as indecorous strife. Let such a man be far from youth! with such a man I am not formed to have any intercourse.

Could the master have his eyes every where, to prevent every trifling dispute, that might arise from this or that accidental circumstance in wrestling, and could he pair equal with equal, nothing more would be necessary. But this is not possible in a tolerably numerous company of young, lively persons. It is necessary, therefore, to institute a regular contest.

He puts the question: who will wrestle? Every eye sparkles. 'I! I!' If any one refrain from coming forward, he does not urge him, for it should be an affair of pleasure, to exercise the body, without embittering the mind.

The first pair step forward. The master knows their strength, and considers in silence whether

whether they be well-matched : if they be not, he will match them better. The appointed signal is given, and the contest begins. This remains now to be described.

I have already said more than once, that our children are to be formed neither into ancient athletes, nor into modern bullies, but into vigorous youths and men : nothing, therefore, must be admitted into our juvenile contests, but what tends to strengthen the body, and render the mind courageous, without being any way detrimental. What I shall describe, therefore, will be no battle in earnest, but a youthful exercise, to which I have paid accurate attention for these two years, and found not only free from danger, but highly beneficial.

Two persons grasp each other with the hands and arms, and each endeavours to throw his antagonist. The proceeding here is too obvious, for us to spend any time in inquiring into the methods of the ancients : our youth are not intended to acquire any eminence in the art ; theirs will be merely a trial of strength, and natural dexterity, or adroitness gradually acquired.

The following are the cases, that usually occur in such encounters. 1, One of the

parties pushes the other from his ground: 2, lifts him up in his arms: 3, throws him down.

Hence I establish the following three kinds of wrestling.

a. *The light wrestle.* This consists in pushing your opponent before you, without throwing him down. The regular mode of attack is, for each to grasp the other by the arms near the shoulder, and thus to begin pushing him. In such a position neither has any advantage over the other, provided the ground be level, and of the same nature. This position, however, is not long maintained: A pushes sidelong against B, and exerts all his strength, to move him from his place, &c. All this comes readily of itself. But he obtains a great advantage over B, if he be able to get behind his back, and then seize him by the arms. In such a case he pushes him before him with ease, and the victory is gained. There are two methods of acquiring this advantage: A springs round B with extreme quickness, and seizes him behind; or he endeavours to give B a sudden swing round, that he may lay hold of him in the same manner. If the parties be nearly equal in point of strength, neither of these is easy: the former requires great agility, the latter great force.

force. The most likely mode of proceeding is to combine the two, and employ them unexpectedly.

b. *The half-wrestle.* α. First species. The chief point here in view is, to take your antagonist in your arms, and lift him as high as possible from the ground. If both parties be vigilant, it is a long time before either is able to do this, as each does all he can, to prevent his opponent from grasping him with his arms. The contest usually commences, therefore, with the *light wrestle* before described; each pushing or pulling the other by the arms, till he finds an opportunity of closing with him, and lifting him from the ground. The most advantageous mode is to seize him behind, and thus hold him fast: seizing him before is much more precarious, as he may then fix his hands against you, bend his body, and so extricate himself, before he is raised up. It is apparently very advantageous, to include his arms as well as his body in your grasp, as thus he seems to be manacled; but in this case too he can loose himself with more facility.

ε. Second species. This is an easy deduction from the former. A voluntarily allows B to grasp him round the middle. B throws both his arms round him, and locks them fast

by

by interlacing his fingers. He is to endeavour to hold A fast, while A strives to escape from his arms. A will effect this most readily, by insinuating his hands and the lower part of his arms between B's arms and his own body, and forcing B's hands asunder. If A get loose, he is the victor; if he do not, B. This exercise is well adapted to strengthen all the muscles, particularly the back *. I cannot sufficiently recommend these two highly innocent kinds of wrestling, a and b: they eminently fulfil the conditions of what we understand by gymnastics, and can be practised where soft ground is wanting.

c and d. *The complete wrestle*, and *the repeated wrestle*. Both these have one common object, that of throwing down the antagonist. This may be accomplished in various ways, which young persons easily find of themselves, so that it is unnecessary to point out any particular proceedings here.

* Galen, *de Sanitate tuenda*, Lib. II, cap. 9, speaks of this exercise as follows. ‘ Robur partium tum exercet, tum firmat, si quis alterum complexus medium, aut etiam ipse medio comprehensus, manibus, digitisque pectinatim junctis, aut quem complectitur absolvere se jubeat, aut ipse se a complectente solvat.’

Each of these kinds begins much in the same manner as the former two. One endeavours to grasp the other in his arms, in order to throw him down, while the other is on his guard, to prevent him. Thus they continue the struggle, each assailing his antagonist, or defending himself, as he sees occasion, till one overpowers the other, and throws him down. So far the two kinds here noticed together agree; but, from the moment of one being thrown, they differ in the following respects.

In the *complete wrestle* the object is, not to suffer your opponent to rise after he is thrown, but to keep him down, till it appears, that he cannot gain the upper hand, or till he himself cries, enough! This is effected in the following way. A, the thrower, must endeavour to confine B with his back on the ground: for which purpose he kneels down in such a posture, that B is between his legs and knees, and at the same time he grasps the upper part of B's arms firmly with his hands, pressing them to the ground. B can do very little in such a position: but it is still better for A to kneel down so that B's head shall be between his knees, with the crown of it toward A's feet, confining his arms as above.

B, who

B, who is thrown down, can do nothing better, than turn upon his belly, raise himself on his hands and knees, and then throw off his opponent.

In the *repeated wrestle* the point to be gained is, to throw your antagonist twice; and it is not necessary to keep him on the ground.

e. *The compound wrestle* is of all the most difficult; as in each of the other kinds what is to be done is fixed, so that either party is aware of his opponent's object; but it is not so here, in which all the kind are united. Each of the wrestlers incessantly exerts himself, to press upon his antagonist, to lift him from the ground, to throw him down, to keep him from rising; while the antagonist is not forewarned of his particular object, and consequently must employ double vigilance, presence of mind, adroitness, and force, to defend himself. He who first gives out loses the victory.

Rules and precautions.

1. The ground should be a soft moist sod; or, which is far better, deep sand.
2. The wrestlers previously strip off all their superfluous garments; take every thing hard out

out of their pockets ; and remove all stones, and the like, from the place of contest.

3. The master takes care beforehand, to excite in his pupils such a temper of mind, as precludes all animosity. Nothing is easier than this, if he have to do with reasonable boys, enjoys their esteem, and compels no one to this exercise, but admits solely volunteers.

4. The wrestlers stand a few steps from each other. Their first encounter, which takes place on an appointed signal, is not hasty, but rather a mere play with the hands, endeavouring to obtain the most advantageous hold. This rule must be insisted upon strictly, otherwise the wrestlers will rush on each other with too much violence.

5. No one must be allowed, to lay hold of the clothes merely, still less of the hair of his antagonist ; he must seize him fairly round the body, or by the limbs. The head and neck are to be spared as much as possible. Blows of every kind are contrary to the laws of this exercise.

6. On the decision of victory the following observations are to be made. In the *light wrestle* the pushing must be carried so far, that the antagonist is unable to keep his ground. In the *half wrestle* a momentary lifting from

the ground is not sufficient, but the antagonist must be held so fast, that he cannot free himself. To what has been said of the *complete wrestle* I have nothing to add. In the *repeated wrestle* the thrower quits his antagonist the moment he is down. After resting for a couple of minutes, the contest is renewed; if he, who was thrown before, be thrown again, this is decisive; if the other, they are equal, and it is left to their own choice, whether they will share the victory, or not. If they will, the contest is terminated; if not, it is renewed. The master, however, who knows their strength, their ardour for the sport, and the degree of exertion they have employed, decides whether it shall be renewed immediately, or deferred to another time. The third trial must determine the point, the victory being his, who has thrown his antagonist twice.

7. He who throws his antagonist, without falling himself, or touching the ground with his hand or knee, is victor at once.

8. It is unnecessary for me to observe, that the whole attention of the master must be unremittingly employed. The company standing round in a circle constitutes the spectators, and also the tribunal of appeal. They give their plaudit; they animate, or reprove the combatants.

combatants. In contested cases the victory is decided by a plurality of voices.

f. *The wrestle for an apple, or a stick.* To impart strength to the hand and fingers in particular, for grasping any thing firmly, an apple, or something similar, is held in it by one, while another endeavours to get it out. This exercise of the fist is very ancient. Milo was eminent for it: he defied any one, to open his simply clenched fist, or to take out an apple held in it*. If it be desired to exercise the arm at the same time, a smooth, round stick, three, four, or five feet long, is taken instead of an apple. The decision of the victory here is obvious.

Thus we are arrived at the end of the ancient pentathlon. The exercises, that follow, were not all familiar to the ancients, though several of them were used in the gymnasia. These I shall notice, as they occur.

* Galen, *de tuenda Sanitate*, Lib. II, cap. 9. ‘Malum punicum, aut tale quippiam, manibus complexus, auferendum cuivis præbebat.’

CHAP. VI.

CLIMBING.

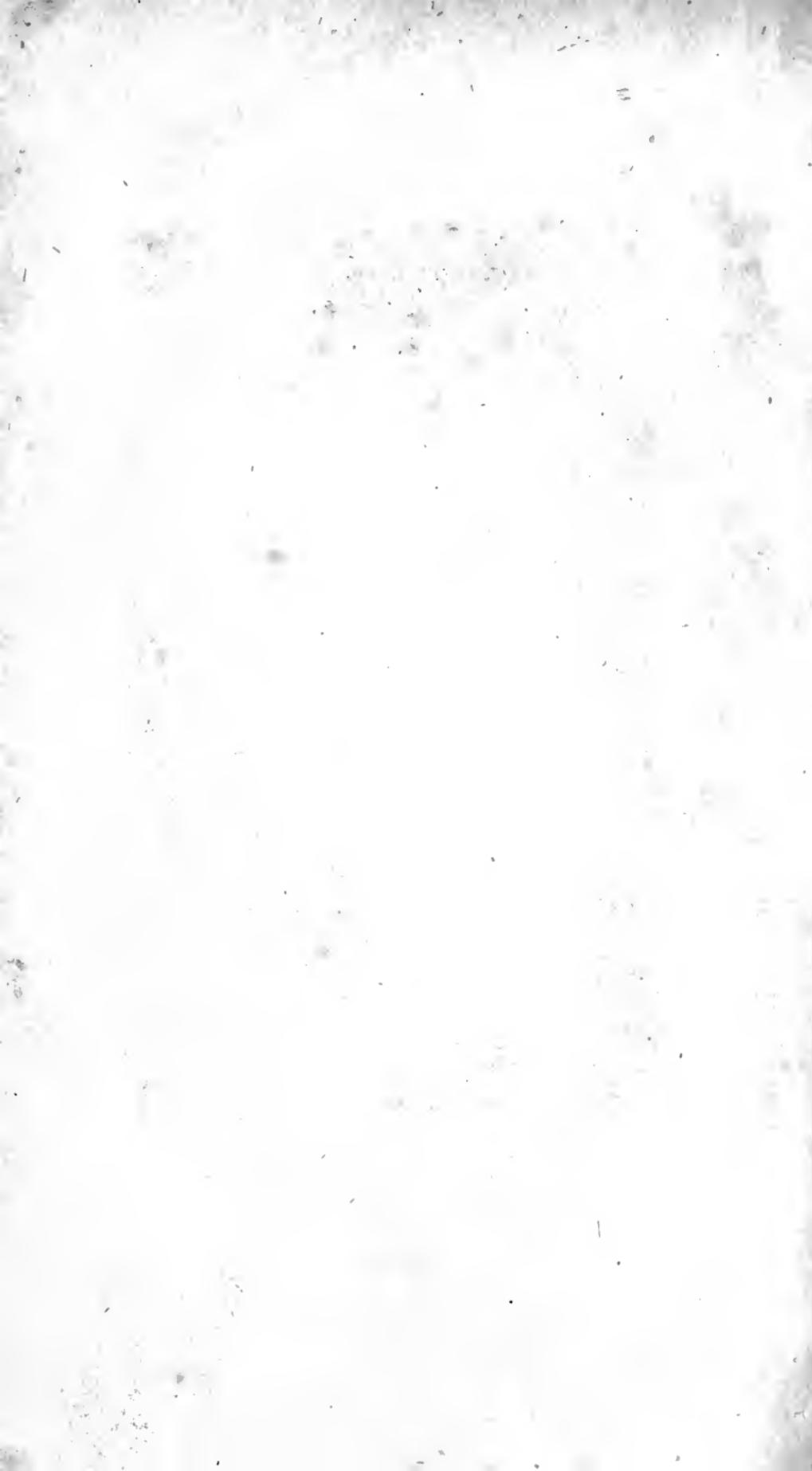
OUR pupil is to acquire muscular vigour, to have strong hands, arms, and legs; standing on a height, to feel no giddiness; in perilous situations, on the appearance of danger, to retain his presence of mind. A sedentary mode of life, and too intense exertion of our mental faculties, rob us at an early period of these manly qualities. As men, as youths, we are terrified at precipitous paths, our heads turn, and we are lost, where in our tender years, ere spoiled by the hand of Art, we frolicked without thought of danger. If we exercise the boy and the youth systematically as far as possible, firmness of nerves, and courageous presence of mind, will become fixed in him; they will accompany him to manhood, and, even after a long interruption, they will be unquestionably displayed by him in a far higher degree, than by the man, who was rendered effeminate in his boyish days.

To strengthen the body, fortify the courage, and increase the truly useful capacity for
escaping



Climbing.

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escaping from various dangers, in case of fire particularly, climbing is one of the most advantageous exercises: and when it is taught systematically, and by due gradations, it is less dangerous than riding on horseback, or in a carriage.

One of the first physicians in Europe, Frank, who is an honour to the german nation, recommends this exercise. ‘The climbing of trees and walls tends greatly to promote bodily agility in boys, and through means of this their health. Nature seems originally to have formed man, who has to procure his food from lofty trees, for this exercise in particular: consequently it must be of a certain degree of utility to our bodies. But were it only, that youth are thus familiarized, under good guidance, with various dangers, not always to be avoided in common life, and learn the great art of preserving the balance of the body in all cases, much would be gained by this. For men of the lower clas, and the peasantry, the art of climbing is of more extensive utility: by means of it children become habituated at an early age to dangerous situations, and are thus secure from that dizziness, which is often fatal to many on the occurrence of danger. Without this art, the

soldier is in many cases incapable of acting; and every autumn hundreds break their necks or limbs by falling from trees, whom more exercise in this art would have saved *.

In our place of exercise we look out for a clump of trees. Oaks, beech, and other trees, of different ages, grow here close together, and overshadow a pleasant little spot. This place we appropriate to the exercise of climbing.

1. *Preparatory exercises.* Nature has bestowed on us very safe and sufficient implements for climbing, in our hands, arms, legs, and thighs. We must begin with strengthening these, before we venture upon the practice of climbing itself. This is effected indeed by various gymnastic exertions; but the following exercises have a particular tendency to it, and are highly beneficial, not as preparatory to climbing merely, but as trials of firmness and patience, and exciting contempt of pain. These qualities in a man are highly estimable; and if every exercise described in this book be closely examined, it will appear, that most of them have this tendency. But, to notice this particularly in each, would carry me too far: neither is it judicious in a writer, to forestal

* System of medical Police, Vol. II, p. 644.

the ideas of his readers too much, as it affords pleasure to the reflecting mind, to discern more than is expressed.

a. Exercise of the hands and arms by suspension. Two perpendicular posts are fixed in the ground, twelve or fifteen feet distant from each other. One stands nine feet high; the other only six or seven. See Pl. I, fig. 4. A cross beam, at least ten inches thick, is mortised into the heads of the posts, x x. It's lower edge, b b b, is about four inches broad; it's upper, a a a, not more than two inches and half, and rounded, that it may not incommod the hands.

Under the cross-beam a form is placed, on which the boys, who are to exercise themselves, stand, the shortest at the lower end, the tallest at the higher, so that all are able to grasp the upper edge of the beam with their hands. Each stands with his face toward the lower end of the beam: at an appointed signal all lift up their feet, and the form is removed. Thus they all remain suspended; supporting their whole weight by their arms. This is what every one in climbing should be able to do. The contest here is decided by time, and he who holds out longest is declared

victor. The burden increases every minute, and so does the uneasiness of the hands. The face gradually reddens from the exertion. At length one loses his hands, and drops to the ground; then a second; presently a third. The more strong and hardy remain looking down upon them with a smile. The expression of manly selfcommand, contempt of pain, and patient perseverance, is highly interesting in the countenances of these. The contest continues six or eight minutes: the weaker drop; the victor at length follows them, after having won the prize by his perseverance.

It is not necessary, to grasp the beam always with one hand on each side: sometimes the hands may be both on the same side of the beam: and when the hands and arms are gradually strengthened by repeated exercise, the master increases the difficulty, by directing the boys to suspend themselves by a single hand only, first by the right, next, and more frequently, by the left. The beam, too, is by and by forsaken for a low branch of a tree, or a rope stretched horizontally: This kind of exercise was not unknown to the ancients. Galen mentions a practice in the gymnasia of grasping a cord, or pole, and remaining suspended

pended from it for some time, as a very robust and fatiguing labour *.

Hanging by one arm is a variety of this exercise. The apparatus is the same; but the pupils suspend themselves by the arm alone, by bending the elbow joint over the beam, without the assistance of the hand.

The raising or supporting yourself on both hands is of a different kind, but extremely conducive to strengthening the hands, arms, and shoulders. This will be noticed in the following chapter.

6. *Exercise of the legs and thighs.* . The object here is so to grasp a rough stem of a tree, or a smooth pole, of larger or smaller dimensions, with the legs and feet, as to be able to sustain the body at any height, without the aid of the hands. For this purpose the position of the legs displayed in Pl. I, fig. 5, is perfectly adapted; and it is easily learned. Each of the party having chosen his tree, the master gives the word of command, ‘to your posts!’ and all climb a little way up their trees. At the word, ‘hands off!’ each stretches out

* ‘Si quis, fune arrepto, aut etiam pertica, sublimis ex ea pendeat, ac diu teneat, robustum is validumque laborem exercet.’ *Dē Sanitate tuenda*, Lib. II, cāp. 9.

his arms, as in Pl. 6, and keeps himself firm by his legs and feet alone.

When the pupils are capable of performing these preparatory exercises to some degree of perfection, every species of climbing will be incomparably more easy to them. Still these exercises should take their turn afterwards occasionally, on account of their intrinsic utility.

2. *Climbing itself.* The apparatus for this purpose consists in a long fixed pole, four inches in diameter; a rope ladder; a slender mast; a rope of the thickness of the thumb; and, for the expert, every tree that occurs. Most of these are united in a machine, delineated in Pl. 1, fig. 6.

AB AB are two posts, sixteen feet high, or more if you please, firmly fixed in the ground, ten or twelve feet distant from each other. BB is a crossbeam, resting upon these posts. If you have a couple of trees, at a suitable distance from each other, which will admit a crossbeam to be fixed securely to them at a proper height, each end resting on a stout branch, where it forms a fork with the trunk, the upright posts are unnecessary. This frame supports our implements: xx is a straight pole,

pole, with the bark on it, three or four inches in diameter : z z, a rope ladder, furnished with wooden bars at 1, 2, and 3 : y y is the rope, fastened to the crossbeam by a noose. The figure shows how all these are secured. The mast, of which we have spoken above, is fixed separately in the ground. It is fifty or sixty feet high, and plained smooth, the rind being first stripped off. A slender fir is the most convenient for the purpose.

Mode of exercising. *a.* The pupils begin with the *pole* x x ; for, as this is rough, and sufficiently slender to be grasped by the hands, the task of climbing it is most easy. The legs and feet, it must be observed, are to be used in the position represented at fig. 5. Any slender trunk of a tree will answer the purpose of this pole. By degrees the master brings his pupils to thicker poles, which they cannot grasp with their hands, and which they must consequently embrace with their arms. In this manner they soon learn to climb trees, which they cannot completely encircle either with their arms or legs.

c. The *mast* is far more difficult to climb, as its surface is smooth, and it is insusceptible of being grasped by the hand. This particu-

larly requires expertness in the elementary exercises (p. 269.) The practice itself is generally known, and it is in use as a popular sport in many parts of Europe. A few weeks ago one of my pupils climbed up such a mast fifty feet high, and fearlessly held himself to the top by one arm, while with the opposite hand he plucked off some flowers, that were fastened there, and threw them to his playmates below, upon whom he looked down for some time from the giddy height. You may permit boys to climb a mast of this kind without any fear; for such as have not surmounted all danger of giddiness will never ascend too high; and if one who has should find his strength exhausted, he will not fall to the ground, but slide down the mast.

γ. There is still greater difficulty in ascending the slack *rope-ladder*, fixed at the top alone. It requires an extraordinary exertion of the hands and arms, for they must support the body, which has a constant tendency to bend backwards: and the continual vacillation, which will certainly daunt the weak and unpractised, and turn their heads giddy, increases the difficulty, and renders this exercise one of the most efficacious for our purpose,

pose*. If the ladder be sufficiently strong, the master permits two or three to climb up and down it together, by which they learn to pass each other with facility. He who is coming down hangs by one of the side ropes, till the other has ascended above him. The mode of climbing is obvious enough, being the same as with a common ladder: only, as the rope-ladder hangs perpendicularly, and is completely pliable in every part, the steps on which the feet rest are pushed forward, and the upper part of the body falls backward in an inclined position: thus the weight must be sustained by the hands, and the exercise is rendered so laborious, that it is impossible to ascend any considerable height in this way. It is necessary, therefore, to hold fast by each of the side ropes, and keep the body, as much as possible, not in a bent position, but extended and up-

* In the *Journal de Paris* for 1791, num. 232, is an extract of a letter from Petersburg respecting Russian exercises, in which this practice of mounting a rope ladder not fixed below is reckoned a sort of prodigy. This, however, it certainly is not. I lately saw a boy, eleven years old, who had exercised with the rope-ladder a very little while, climb up forty steps of one, that was perfectly loose at bottom,

right,

right, the toe pointing at the same time a little downward.

3. Climbing the *ladder*. This exercise is useful for improving the capacity of preserving the equilibrium of the body, arming against situations of danger, and strengthening the hands and arms. A wooden ladder is placed leaning against a wall. Beginners learn first to ascend and descend it without fear; and then to go up, without using the hands, as on a pair of stairs, turn round, and come down in the same manner. They then climb up and down the under side of the ladder; and at length this exercise is rendered more difficult, by employing the hands alone, without using the feet. In this case the climber must hold *fa* by the rungles, moving his hands alternately from one to the other, while his body hangs in a perpendicular position. One acquires the art of ascending on the under side, creeping through between the uppermost rungles, and descending upon all fours, with his head downwards. In doing this he hooks his feet over the rungles above, and moves them cautiously from one to another, while his hands alternately shift from one rungle to another below. A second, to prove the flexibility of his body, winds himself

himself like a snake through all the rundles, passing over one and under another alternately, from top to bottom. A third ascends the ladder in the usual manner, but, when he has reached the top, swings round one of the side poles, and descends on the under side, with or without the use of his feet. A fourth ascends half way, and then grasps the ladder fast, while the master turns it round, so that the upper side becomes the under. These little trials of skill are susceptible of much variation.

A ladder eleven feet long is sufficient for these purposes. It must be made perfectly strong and secure. The master must always have his hands ready, to assist the beginner: and this he can with the more ease, as in general one only will be exercising at a time.

e. We now come to the single *rope* *. This exercise is more laborious than the preceding,

* This gymnastic exercise was not unknown to the ancients, who called it *το δια σκοινον αναρριγασθαι*, *per funem ascendere*. According to ancient gems, the rope was fastened at the bottom as well as the top, and stretched tolerably tight. Galen mentions it in the following words: ‘ si quis per funem manibus apprehensum scandat, sicuti in palæstra pueros exercent, qui eos ad robur præparant.’—*De Sanitate tuenda*, Lib. II, cap. 9.

as here are no steps, on which the feet can rest; yet any boy, who can climb the pole ~~xx~~ with ease, can climb the rope in nearly the same manner with tolerable facility. The chief difficulty consists in embracing the rope with the feet in such a manner, as to obtain a firm point of support. In this the knees and legs have nothing to do, the ankle-joint alone being employed. If you seat yourself in a chair, and cross your feet at the ankles, you will have them precisely in the proper position for climbing a rope. In this manner you hold the rope firmly between the feet as near as may be to the joint, while the hands grasp the rope above; then drawing the feet higher, and taking hold with them again, you shift the hands higher also, one at a time; and thus you proceed, raising now the feet then the hands. I can add nothing more on the subject, except the following precautions.

1. The rope must be of such a thickness, that the hands will not shut too close, and not so smooth, as to slip through them. For beginners it should be fastened to a bough not above eight or nine feet high.

2. In ascending you should come down hand after hand, as in ascending; for if you slide

slide down by the hands, the friction will excite in them intolerable heat, and make them sore, or gall them*.

3. The rope should not be grasped between the legs, to avoid injury from friction in ascending, and still more in descending, but between the feet at the ankle, as directed above. That the master will take care the rope is not defective in strength, is too obvious to be mentioned. It's length should be about five and thirty feet.

The expert boy will soon find every thing hitherto mentioned in this chapter very easy; let us therefore throw more difficulties in his way, for by surmounting these alone will he daily augment his strength and energy. Ask him whether it be possible, to climb the rope by the help of his hands and arms alone, without using his feet. It is difficult, no doubt; but the master can soon convince him of it's practicability. He reminds him of his first preparatory exercise, in which the body was held for some minutes in suspension by means of

* Sailors, whose hands are hardened by continual labouring at the ropes, will descend from considerable heights in this way, which they call coming down by the run: but this callosity of the hand is by no means desirable for those, for whose use this book is intended. T.

the hand, and points out to him the similarity between that case and the present: he tells him, that a hale man, who is not weak, can lift with one hand a weight equal to that of himself without much difficulty; and that a person, who hangs by one hand, supports just the weight of his own body. The matter is brought to the test. At first the boy is foiled: each hand singly, the left in particular, is yet too feeble, so to draw up the whole body, that the other hand may grasp the rope above it. But the master at first employs his hand also, supporting with it the climber, and thus rendering it more easy for him to hold himself by one hand to the rope, while the other seizes it higher up. He recommends him anew to practise the exercise of hanging by one hand, particularly the left; and after persevering in this way for a time, he at last accomplishes his object, though this sometimes requires several months. I know a few, who climb up and down a rope in this manner with great facility. This exercise is one of the best and most effectual for strengthening all the muscles of the breast, arms, and hands: it is a true touchstone of the powers of these parts, and improves them with safety.

Youths

Youths love variety: nothing excites them so forcibly to exercise as novelty: for this therefore the master must provide. He observes to his pupils: ‘ we pursue this exercise, to render us strong: but suppose we were obliged to have recourse to it, to escape some danger, had climbed up some height, and the strength of our hands failed us; what should we do in such a case? If we descend, we run into the danger we sought to avoid; and if we fall, we shall break our limbs, if not our necks. What then is to be done?’

‘ We must hold ourselves fast, till our hands have recovered their strength:’ says a thoughtless little urchin.

‘ Very good: but how shall we do this, without exhausting the strength of our hands still more?’

On this they all ruminate, and at length find, that they must so *fasten* themselves to the rope, as to be conveniently supported by it. All are for making the trial, and after some essays the most expert accomplishes it in the following manner. He climbs up a moderate height, and then stops. Here by the help of one foot he twists the rope three or four times round the other, as in Plate I, fig. 7, and confines the turns between the two

feet. The friction hence arising between the feet and the rope is sufficient to resist the whole weight of the body. Thus he obtains a considerable degree of rest. But he is ambitious of more: he wishes to rest perfectly at his ease. He lowers himself down by the hands, till, holding above with one of them, he can reach the loose part of the rope below his feet at a; then recovers his erect position; and passes this end of the rope a few times across his shoulders and hips, including the upper part of the rope in each turn, till he is sufficiently secure.

One day the young company assemble at their climbing place. The rope and rope-ladder they carry with them, but the ladder, by means of which they are accustomed to fix them up, is not there. What is to be done? ‘Are we not to climb to day?’ ‘Yes,’ answers the master, ‘if you can fix your implements without a ladder.’ The most dexterous hangs the rope-ladder over his shoulder by the last step, and climbs up the pole x. This requires exertion and prudence: but prudence he possesses, and of exertion he is not afraid. Thus in a few minutes the rope-ladder is thrown over the cross-beam, and made fast. Another ascends this ladder with the rope, throws over the end in which

which an eye is spliced, so that it hangs down sufficiently to be reached by those below, who draw the other end through it, and thus all is ready. When they are no longer wanted, they are taken down by the same means; and thus there is no farther occasion for a ladder.

Frequently a hint from the master is enough, to inspire every one with eagerness to overcome difficulties, for which youth can never be rendered too prompt.

A better method of taking down the implements is soon discovered by some bold little fellow. He climbs up the pole x, and gets astride the cross-beam. First he looses the ladder: then he goes on farther, slackens the noose of the rope a little, and calls out to those below, to hold fast the other end. This they do. He now gets off the cross-beam, holding by the rope close to the eye, and is lowered down with it gradually by the rest *.

* Probably some of my readers will turn giddy here: yet I can assure them, that I have seen this manœuvre performed many hundred times, without the least accident threatening to occur, when performed by an expert boy. What practice can effect, and how all danger vanishes before it, must not be forgotten. With six young experienced climbers I once visited the *Baumannshæle**. We

* A subterranean cavern in Germany so called. T.

But even this is more than is necessary. It is sufficient, to climb up the rope merely, loose the rope-ladder, and lower yourself down with the eye of the rope.

Precautions. 1. The master will not suffer this to be attempted by any, but those who are very expert; and these he will exercise first at a height of seven or eight feet.

2. In coming down with the eye of the rope, the hands must never be suffered to come too near to the part of the rope that is running through it.

Another easy variation with the rope may be made in the following manner. Let one end of the rope be fastened to the bough of a tree about twelve feet high, and the other end to another about ten paces distant, at the height of five feet, stretching it as tight as possible. On this inclined rope three different exercises may be performed.

The climber takes hold of the rope, and throws his legs over it, so as to hang with his back toward the ground. In this position he

penetrated to the farthest end of it. This is considered by many as a very perilous enterprise, yet not one of the youths could find the least danger in it. How happened this?

draws

draws himself up by his hands, letting his legs slide after, and then comes down again in the same manner. This is an easy exercise. It is more difficult, when the climber is required, as soon as he has ascended, to let the body and legs hang down, and descend by means of his hands alone: but the most difficult is, to ascend the rope by means of the hands solely, while the body and legs hang from it perpendicularly.

Nothing calls all the muscles of the body into action more than the following exercise. The rope is stretched horizontally between two trees. From this the pupils suspend themselves in turn by the hands, their feet not touching the ground, and try who can cross the legs over it oftener. Fifteen times are a great many.

These exercises with the rope and rope-ladder deserve to be particularly recommended, because they may be of great utility in cases of fire. Did boys learn to climb with facility and caution, they would seldom have occasion to leap out of a window three story high from a house on fire, and dash themselves to pieces on the pavement *.

* All our bedrooms at Schnepfenthal are provided with rope-ladders,

Hitherto we have exercised our dexterity in climbing with implements, of the strength of which we are certain, so that with them we are in little or no danger. With trees it is very different. Boughs are often treacherous supports, the nature of the wood is to be considered, and this kind of climbing therefore demands the vigilant attention of the master. In ascending the trunk there is no danger: with the first branch the danger commences, though the exercise is performed with more ease. In this the following precautions are to be observed,

1. At first the master suffers not his pupil to climb high, but to keep so low, that he can easily watch his motions. He stands by him; cautions him against this bough or that; and forcibly inculcates the important rule, to depend almost wholly on the hands, and trust little to the feet, which are always liable to slip.

2. He will not allow any climbing on trees divested of their leaves, as on these the dead branches cannot be distinguished.

Under these circumstances, the judgment of the pupil gradually increases with his dexterity and courage. In a little time he passes from one tree to the next, and so on through a whole

whole row. If he be expert with the rope, he will not always climb up and down the trunk of the tree, but lay hold of any bough of sufficient strength, that hangs low enough, and thus get up, or let himself down, by means of his hands.

By way of sport, or to try the dexterity of his pupils, the master leads them to a clump of trees, and while he is counting fifteen every one must climb up some tree so high, as to be out of the reach of his cane. All exert themselves, with much laughter, to escape the stick, as if some wild beast were at their heels. If any one be defective in agility, he will be reached, and receive the penance of a few playful strokes.

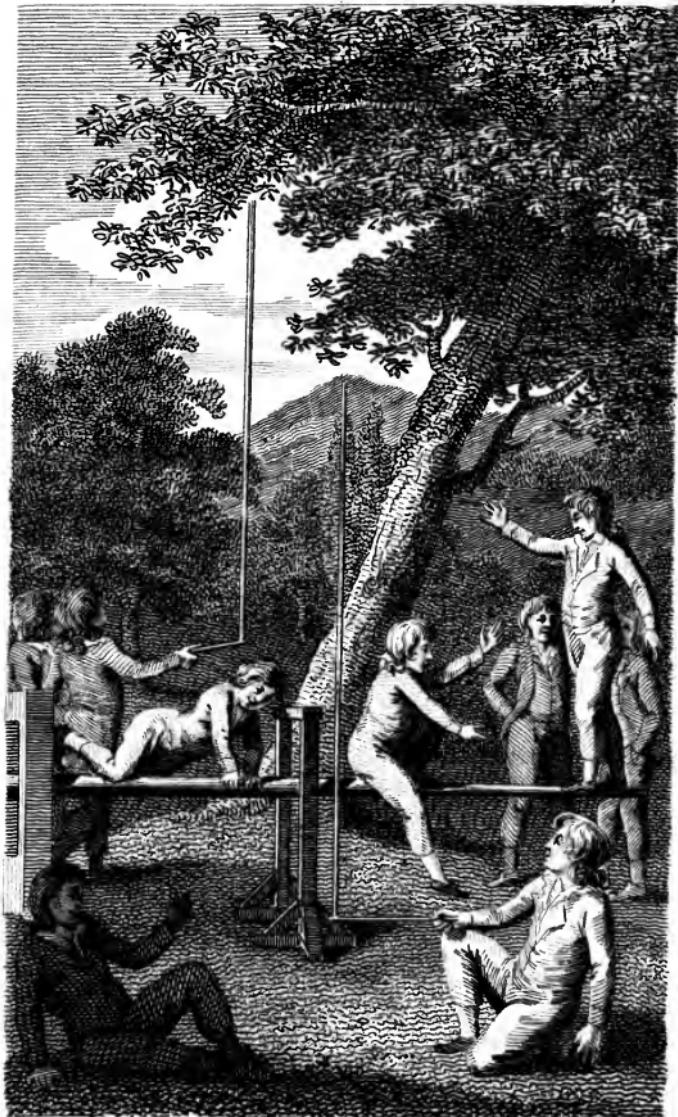
After these and other gymnastic exercises, which foster the young man's courage, teach him caution, and inure him to the preservation of his balance; he will be every where at home, will traverse rude heaps of wood or stones, ascend or descend steep heights without any sensation of giddiness, climb rocks, and be stopped by no obstacle, that is capable of being surmounted.

CHAP. VIII.

PRESERVATION OF EQUILIBRIUM, OR BALANCING,
AND EXERCISES CONNECTED WITH IT.

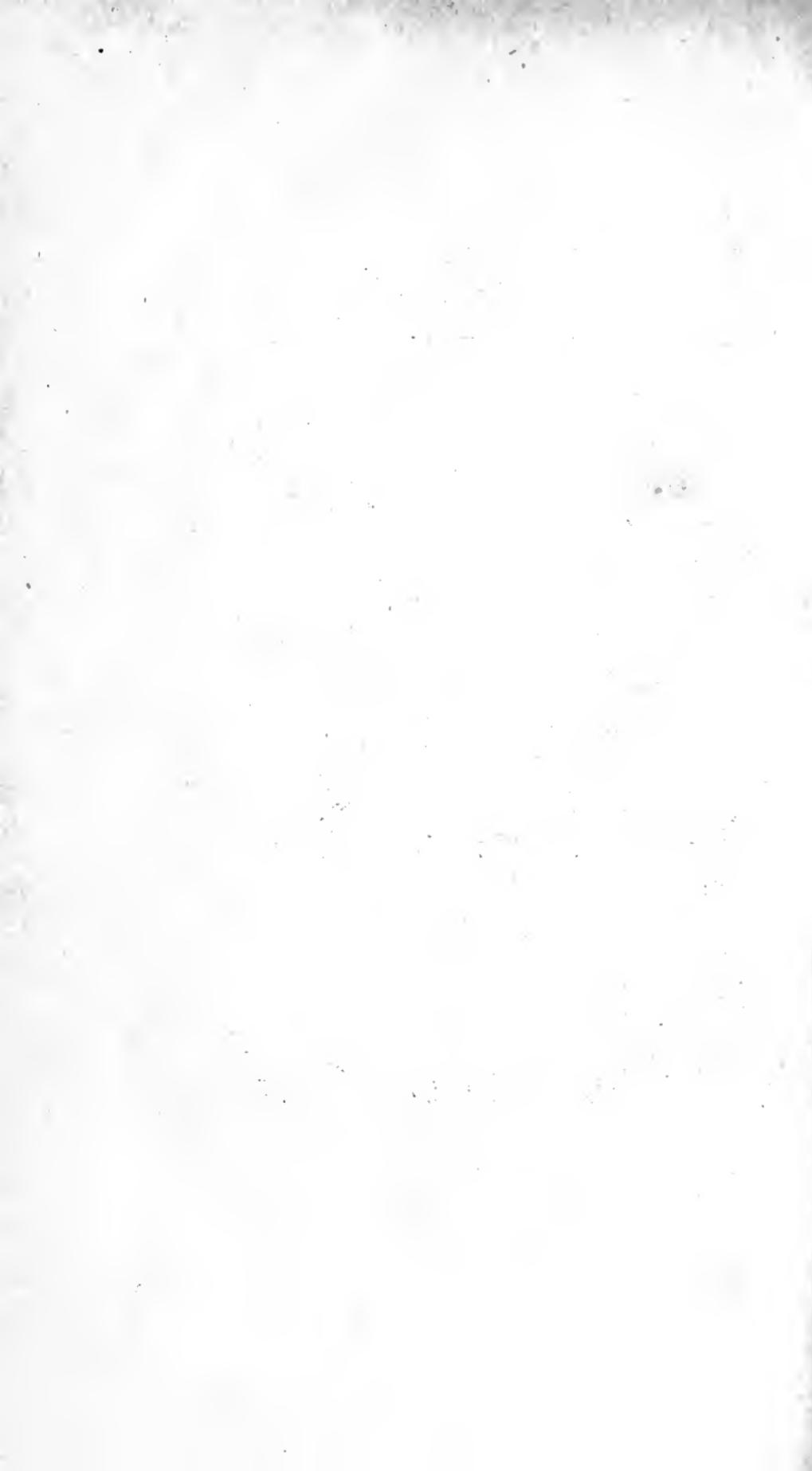
DANCING on the tight rope had been degraded to the rank of a strolling art so early as the times of the greeks, among whom it was well known. We look upon it with contempt, though it excites our astonishment, because we confound the moral worth of the art with the moral character of the performers. This is evidently unjust. An art, which so eminently displays the agility of the human body, as to excite our wonder, merits more esteem. We cannot, however, introduce it in it's full extent into our system of corporal education, as it requires too much time to learn : but we can adopt some imitations of it, as a step to the acquisition in a certain degree of the uncommon agility attainable by it's means.

If we endeavour to preserve the equilibrium of our own bodies, or to balance with our hand any thing that is continually in danger of falling, we shall find prompt, judicious, adroit movements and bendings of the body requisite. By this, hardihood, presence of mind, and justness



Preservation of Equilibrium.

Published by Johnson in St Pauls Church Yard. London Feb: 1 1800.



justness of eye are exercised; and the body gradually acquires a readiness at avoiding a fall by a dexterous leap. These are no inconsiderable advantages, accruing particularly from this exercise; at the same time that it equally contributes to the general ends, for which gymnastics are to be recommended.

I. BALANCING OF OUR OWN BODY.

a. *Standing on one leg.* I take this exercise first, because it may be considered as a preparatory introduction to those that follow, is easy in itself, and perfectly void of danger. The master places his pupils in a row; about a yard distant from each other. At the word of command all lift up the right or left leg, and try who can stand longest upon the other. This may seem very uninteresting; but I can affirm, that the necessary display of patience and perseverance exhibits a very amusing spectacle. I have seen boys stand in this manner half an hour. Let any man stand some time upon one leg; and, if he attend to the exertion of all its muscles, and those of the thigh, he will at once be convinced of the physical utility of this exercise. That the legs must be exercised alternately is sufficiently obvious;

The master next begins to vary the exercise. He places himself in front, and directs the pupils what they are to do by words, or by his own example. For this I need give only brief hints. Standing on the left leg, they place the right, with the knee bent, across the left calf, knee, or ham; or stretch it out as far as possible forward, backward, to the right, or to the left. They hold the heel of the right foot in the right hand, in the left hand, forwards, and backwards. They hold the toe in the same manner. They read a few lines out of a book held upon the knee. They write in the same way. When the hands are not otherwise employed, they may clap them, or place them a kimbo, behind the back, upon the head, &c. The master takes a tolerably heavy stone, or sandbag, and gives it to the first in the row, who hands it to the next, and thus it is passed from one to another till it reaches the last. This, partly from the additional weight, partly from the necessity of reaching sideways, has considerable effect on the equilibrium, and renders it more difficult to balance the body. Sometimes the bag is thrown, instead of being handed, from one to the other. This exercise is still more difficult, and

and one or another is often losing his balance at it.

Frequently the master directs his pupils, to pull off their coats in this position, and put them on again.

These exercises may be varied with others; but the following, with which I shall conclude this subject, are particularly elegant. The pupils take hold of their toe, and carry it to the lips, first forwards, and then backwards. By degrees they must acquire the ability of doing it without using the hand, but for this they must be exercised very early. Farther: at the word of command the pupils stretch out the right leg straight before them, and slowly sit down on the ground, without touching it with the right foot, or with the hands, which likewise must be stretched out forward: they then rise up in the same manner, without moving from their place. Mr. Villaume, in his essay on forming the body*, wishes children might never be permitted, to pull off boots fitting, or steady themselves by any object. I not only agree with him perfectly

* *Revision des gesammten Schul- und Erziehungswesens,*
‘Review of the Management of Schools and Education
in general,’ Vol. III, p. 442.

in this, but am of opinion, that they should neither sit, nor be any way supported, while they pull off any garment. The suppleness of the joints in general would gain considerably by this.

Of the exercises just described I find little notice in the ancients; though Galen describes something not very unlike them in the *πιτυλίζειν* of the greeks *. The person walked a tiptoe, extending his hands and arms over his head, and moving them briskly backwards and forwards. Before I met with this passage in Galen, I had seen the same thing performed by one of my pupils, from his own invention. He walked forwards, not merely on his toes, but on the ends of his toes, so that the soles of his feet were perpendicular, moving his hands backward and forward.

b. *Balancing on the edge of a plank.* The master at length brings his pupils to a plank, ten or twelve feet long, fixed in the ground on it's edge. The upper edge must not be above a foot from the ground, so that no one can be hurt by a fall. Here his pupils try

* De Sanitate tuenda, lib. II, cap. 10. ‘Est autem πιτυλίζειν, si quis summis pedibus ingrediens, tensas in sublime manus, hanc antorsum, illam retrorsum, celerrime moveat, &c.’

who can preserve their balance on it longest, standing on one foot. This is a pleasant exercise, as it affords much laughter. The same board is used to walk on, as a ropedancer does on his rope. In this it is to be observed, that the toes must be turned outwards as much as possible.

c. *Walking on a pole.* An implement indispensable in our gymnastics is delineated in Pl. I, fig. 8. Its principal part is a round pole, A B, about sixty four feet long, placed horizontally. Its large end is squared, and let into the thick post C, which is firmly fixed in the ground, and in which it can be supported at different heights, by means of an iron bolt, or wooden pin, passing through it, the hole 1, 2, 3, or 4, and a corresponding hole in the opposite side of the post. Its middle is supported by the stand D, in which, as well as in C, it can be placed higher or lower. The end B, being unsupported, has a certain degree of play. The distance from A to x is twenty eight feet: the upper side of the pole is commonly three feet from the ground, which should be sand, or soft turf. The exercises performed on this are various: I shall proceed from the more easy to the more difficult.

a. The

a. The beginners, boys of six or seven years old, are led along the pole in it's lowest situation. The toes must be turned straight outwards, and care must be taken, that the body is kept in a good position. The boys soon accustom themselves to this little walk, and the vacillation of the end. By degrees they acquire courage; and learn to preserve their balance. To exercise them at leaping off adroitly, the master at first makes them do so at his direction, by and by he pulls them gently by the hand unawares, so as to make them jump down. All this is done, as observed above, with the master's leading: but this he will gradually diminish. If at first he held the tyro fast by the arm, he will lead him at length by the end of his finger alone, and at last merely hold out his hand in readiness to assist. Thus the pupil learns,

c. to go alone. The master will still be at his side; observe how he carries his body, and places his feet, on which every thing depends; and assist him when necessary.

y. When he is perfectly expert, not merely at walking boldly and perfectly from one end of the pole to the other, but at leaping off safely, when he loses his balance, without danger of falling, the master

δ. increases the difficulty, by placing stones upon the pole, or holding a stick before his feet, over which he must step, or by giving the end B greater motion than it would have of itself.

ε. Hitherto the pupil has walked only from A to B, and then leaped off. By degrees he is brought to turn himself at the end B, and walk back to A. Before he does this, it is to be observed, that he has practised turning several times on the thicker part of the pole.

ζ. The pupil having now learned to walk with perfect security, the master puts a new difficulty in his way, he sets him to walk backwards; I mean, to walk from A to B, with his face toward A.

When this is attained, it may be sufficient; many will think it unnecessary, for their children to acquire still farther expertness in walking on narrow surfaces. But I could wish not to stop here, and therefore propose what follows. I consider walking on a rope, under proper conditions, as far more safe and elegant than walking on a pole. Accordingly, when Mr. Villaume asks, would it not be right to learn the art of funambulation, both on the tight and slack rope? with regard to the tight rope, I readily answer yes. Funambulation, it

it must be confessed, in the way in which it is usually practised as an art, requires too much time to learn, and endangers the neck: but, were these two objections removed, I do not see, why youths should be restrained from a beneficial pursuit, to which they readily incline, because it affords them pleasure.

Let the ground be deep sand; and, instead of the usual rope, let a strong belt be used, the breadth of the hand, and not above two feet, or two feet and half, from the ground. Under these conditions, I prefer funambulation to walking on the pole; both with respect to safety, and to the dexterity to be required by it, though I have never employed it myself. From its proximity to the ground there is no danger of a severe fall, and the breadth of the belt tends to shorten the time of learning. Such a belt would be most conveniently made of three or four ropes as thick as a man's thumb, confined together by interweaving a slender cord. The machinery for extending it, and the exercises performed on it are sufficiently known *.

* I cannot agree with my author here. I am persuaded, that one, who was expert in walking on the pole, would not require much time to learn to walk on a thick rope, like

To return to the pole.

Precautions. 1. It is absolutely necessary, in walking on it, to turn the toes outward.

2. Shoes with high heels are improper for this, as for many other exercises. Shoes without heels are the best, as they never occasion falls *. In very dry weather the soles of the shoes and the surface of the pole are too smooth, on which account they should be rubbed with chalk,

4. To improve them in a proper carriage and suppleness of body, courage, and adroitness in leaping off, and saving themselves in case of falling, qualities already acquired in a great degree by walking on the pole, other exercises remain to be recommended, which are among the most elegant of the exercises in the gymnastic art.

like that used by ropedancers in general, and would tread on it with far more certainty and security, than on a flat belt, the surface of which would be continually inclining from its horizontal position and returning to it again, as the foot bore upon either side with unequal stress, or was removed from it, thus every moment deceiving the person walking on it. T.

* I think it most advisable, for children to perform their exercises in general in the shoes and dress they commonly wear, that they may be on all occasions ready to exert any dexterity they have acquired, without being incommoded by their garments. T.

d. *Vaulting*

d. *Vaulting astride the pole.* It is tolerably easy, for a person to seat himself upon any object, not higher than the pit of the stomach, by taking a preparatory spring (see p. 204), immediately placing his hands on the object, and then leaping upon it. In the same manner he may leap over the object, if it be not too wide. This we apply to the pole. At first the little beginners are lifted upon it; they then learn to climb up as well as they can: this at length is not permitted, but they are made to vault upon it. For this purpose they are exercised separately at first, the master standing by, to save them from falling. Afterwards it is performed, as well as the following exercises, at command; when it not only affords a pleasing spectacle, but teaches the most prompt activity. Even on this account it is highly to be recommended. I will describe it as accurately and clearly as possible.

Six or seven boys stand in a line on the left side of the pole, one step from it. The master stands on the other side, facing them. To make them attentive, he gives the word, ‘prepare!’ He lifts up his right hand, and they all do the same. On his letting it fall, they take a short spring toward the pole, place their hands upon it, and leaping up, throw their right leg over it, so as to bestride it.

it. The master sees, that they seat themselves in a proper position, which is that of a good horseman. By way of change, the pupils may be placed six or eight paces from the pole, take a brisk run, a greater preparatory spring, and raise their bodies in leaping much higher above it. The more justly they keep time in these performances, the more pleasing the spectacle. If the master would have the manœuvre several times repeated, they must get off likewise at the word of command. At the word ‘off!’ they are all attentive: he lifts up his hand, they raise both theirs: he lets it fall, they place theirs on the pole just before them, raise their bodies up, and, throwing the right leg over the pole behind them, spring back to their former position. In both these manœuvres neither the leg, knee, nor foot, still less the body, must touch the pole.

e. *Rising on the hands.* Supposing the boys properly seated astride the pole, they are now to raise up the body at command by means of the hands. The word, ‘rise,’ is given, to excite attention. The master raises his hand, they instantly lift both arms over their heads: he lets it fall, they clap their hands on the pole before them, and raise themselves as high as they can from their seat. In this manner

they try, who can support himself longest. Here again we have a display of manly exertion and perseverance. By and by one of the strongest begins to advance forward along the pole on his hands, and is imitated by the rest.

But we do not stop here. The master tells his pupils, that it is practicable for them, to raise themselves so high, as to place their feet on the pole, just behind their hands. This requires strength in the arms and shoulders, and in the pectoral and dorsal muscles: they attempt it, however, and after long practice succeed. Thence we come to

f. *The standing up on the pole.* Great suppleness of the joints, and skill in preserving the equilibrium of the body are necessary for this. When several have acquired the art, it may be performed at command. Every one being seated astride, the master gives the word: 'up!' At this they are all attentive. He raises his hand; they all raise theirs, as in the preceding instance: he lets it fall; they clap theirs on the pole close before them, and spring the legs upwards, with the whole of the body beneath the shoulders, so that the feet are brought upon the pole, in the first position, close behind the hands, on which the body instantly assumes

assumes an erect posture, so that all stand up at once.

To this is added the sitting down on the pole, in which the preceding manœuvres are just reversed. The words, ‘resume your seat!’ are employed to fix the attention. The master raises his hand; the pupils, as before, raise theirs: he depresses it; they place theirs on the pole, support the whole weight of the body, which is bent forwards, upon them, and let themselves down *gently* astride the pole. I insist upon the word *gently*, to avoid all danger of a blow. He who is incapable of maintaining his equilibrium, while supporting the body on his hands, must come down to his seat suddenly; expertness at the preceding exercise, therefore, of rising and going forward on the hands, must be acquired previous to the introduction of this.

The master, as I have more than once remarked, must be frequently introducing variations in the exercises of his pupils, to improve their dexterity in different ways. He observes to them one day, that standing up on the pole with the assistance of the hands is a trifle; and that it is by no means impracticable, to hold the hands clasped over the head, and rise up thus. This excites their curiosity: they make the

attempt, and before it might have been expected, the following mode is invented.

A youth fits astride; lifts his knees up, till they are nearly close together on the pole; and, bending his body forward, gives it a swing, so as to raise himself upon his knees. He then slides one of his knees backwards, so as to get it upon the most elevated part of the circumference of the pole, balances himself upon this knee, places the opposite foot upon the pole, and then rises up.

'Very well,' observes the master: 'but I know a shorter method, though more difficult to such as are defective in agility. When you are astride the pole, set one foot upon it as close to yourself as you can, and then rise up.' Upon this they first make the trial on plain ground, to sit down from standing upon one leg, and again to rise up with the assistance of one leg alone. This succeeds; they repair to the pole, and are equally successful there.

g. *Vaulting up on the pole.* All these little arts being mastered, a certain gracefulness in performing them acquired, and strength combined with agility, we wish for something more. The master proposes to his pupils, to place themselves erect on the pole, without first bestriding it, or even touching it for more

than

than a single instant. This staggers them, when he shows them by his own example how it is to be done. Standing a few paces from the pole, he runs toward it, takes a short preparatory spring, lays his hands on the pole, leaps up so as to bring his feet between them, and is erect in a moment. The more expert alone must be suffered to attempt this. Each makes the trial singly, and the master places himself on the other side of the pole, in order to assist him if necessary by laying hold of the arm, and save him from any danger. When several can accomplish this feat with perfect security, they may perform it altogether, at the word of command. It will be easier at first to practise this neat exercise on a table.

h. *The pass.* By the preceding exercises our pupils are brought to stand on this narrow surface, walk, and turn upon it, with facility. At length, two walking upon it at the same time meet, and would pass each other, without leaping down. How is this to be accomplished? They take hold of each other's arms; place their right feet close to each other in the fifth position; count one, two, three; and immediately turn round each other to the left, taking a step with the left foot to the right of each other. Thus they will have

changed places : but they must balance their weight against each other with accuracy, otherwise they will be forced to leap off, to avoid a fall.

i. *Gaining the balance.* Two persons stand on the thicker half of the pole, each holding a ropedancer's pole with both hands, crossing that of his antagonist in the middle, and pushing him with it sideways, till one loses his balance.

j. *The turn sitting.* This is no very easy performance, if it be done tolerably quickly, and without touching the pole with either hand. The manner of doing it is obvious : one leg must be thrown over first, and then the other.

k. *Vaulting over the pole* is an exercise tending greatly to promote agility. The person places himself a step from the pole, takes a short preparatory spring, places his hands at the same time on the pole, and throws both his legs over it, the hands forming the point, round which the body turns. The master exercises his pupils singly at first, standing himself on the opposite side of the pole ; and teaches them to leap over either way, swinging the body to the right or to the left. The following mode is somewhat more difficult.

cult. The person about to vault over stands a foot or two from the pole, with his right side toward it; runs along it by two or three short steps; takes a preparatory spring, lays his right hand in the mean time on the pole, and, leaping up, throws his legs and body over. In this case the legs are thrown forward, so that the heel and calf are next the pole in passing over it: in the former, they were thrown backward, so that the toes and knees were turned toward it. The same should be practised with the left hand. When several have learned either of these exercises thoroughly, they may perform it together at command. In both it must be observed, that the feet are to be kept close together.

1. *Seesaw.* A stout plank, sixteen feet long, is supported in the centre two feet from the ground. Two of our young pupils place themselves standing one at each end, and gradually set the plank in motion up and down, preserving their equilibrium. At length they become so expert at it, that they can leap up a foot or more in the air, and alight again in their proper standing place. In doing this the feet must be always close together, and the whole body kept in a proper position. That the plank may not deviate from its direction,

it is suspended between two posts, driven into the ground, at such a distance as to admit it's playing freely between them, by means of an iron axle, the projecting ends of which are received into two iron nuts, one in each post. This exercise, which tends greatly to promote adroitness, is a favourite amusement of the ladies in some parts of the russia empire. The ground should be sand.

m. *The oval seesaw.* With the plank before-mentioned the motion is rectilinear, and therefore not very difficult, but the machine delineated in Pl. II, fig. 9, renders it more complex. The figure A B C represents half an oval, the longer diameter of which is ten feet, the shorter, seven feet ten inches. A B is a pretty strong plank, twelve feet long. A pin three feet five inches long is let into it's centre perpendicularly at x. On this the machine rests, so as to form an angle of 36° , or thereabout, with the ground. At each end is a stand for the feet, y, y, supported by strong brackets, z, z, against which the feet are staid, as the machine moves up and down. The machine may be made in the same manner, as the frames on which masons construct arches. Two persons, standing on the steps y y, set the machine in motion, by pressing

pressing on the ground alternately with a staff, with which each is provided. This motion, from the form of the machine, is obviously curvilinear.

n. *Stilts.* The advantages of learning to walk with stilts are obvious: courage, pliability of body, the capacity of preserving our balance on feet that end nearly in a point, and exercise in the open air. ‘In some hot countries,’ says Frank, ‘old and young walk upon stilts without annoyance over the burning sands, across ditches and rivers, and acquire a habit of treading with such firmness and security, that they pass hundreds of places, where the inexpert would be forced to stay behind, or risk a fall.’

This exercise is void of all danger, and boys of seven years old, or under, learn it readily. The manner of making stilts is too well known to require a description; but I must observe, that I do not approve the common practice of making them so that the top reaches just to the armpit. In my opinion, it is much better, that it should be higher than the head, by which means all danger of injury in the armpit from falling is avoided. The height of the step on which the foot rests should not be

be more than a foot for beginners; afterwards it may be increased.

The stilts may be held either in the manner in which a soldier holds his ordered firelock, or so as for the ends to pass up behind the shoulders. In the latter case, however, care must be taken, that the erect position of the body is preserved, which is too often neglected. For their use we can give no farther rules, except, that the sole of the foot must be kept tight on the step, every thing else is soon learned of itself.

Young persons love feats of dexterity, and are soon weary of simple exercises. They will soon be walking up and down steps with stilts, but this I deem hazardous, though to steep ascents and descents they ought to be familiarized. A better feat, and unattended with danger, is, to take one stilt away from under the foot as they are walking, shoulder it like a musket, and hop about on the other. This has a striking appearance, and is soon learned. Both the common walking in stilts, and hopping on one stilt, may be made a contest of emulation among several, setting off at the word of command, to proceed farthest, or to a given distance in the shortest time.

o. *Walking*

o. *Walking with a ladder* is nearly allied to the preceding exercise; for he, who is capable of hopping on a single stilt, will soon learn to ascend the first, second, or third rundle, of a light, handy ladder, and even higher, though entirely unsupported, preserve his balance, and walk about on it. Here the performer can lose his equilibrium only in two ways; either he must incline with the ladder forwards, or backwards. In the former case, he must move the point of support of the ladder forwards; in the latter, the reverse. This he may accomplish, either by holding the ladder tight under his feet, and leaping into the proper situation; or, which is much more commodious, and requires less exertion, he will move the ladder backwards or forwards, by inclining it a little on one side, so that it may rest on one of the staves only, while he moves the other of the staves in the direction required, and proceeding thus to move the staves alternately. The beginner will place himself only three or four paces from a wall, with his face toward it, in order to mount the ladder, for thus, if he lose his balance forward, he will be prevented from falling, if backward, he will naturally slip his feet off.

p. *Skating.*

p. *Skating.* I am come to an exercise, superior to every thing, that can be classed under the head of motion. Like the bird sailing through the air with wing unmoved, the skater now glides along as if impelled by the mere energy of volition; now gracefully wheeling in all the intricate curves fancy can conceive, he wantons securely on the slippery surface, that the unpractised foot dares not tread; anon the rapidity and ease with which he glides along astonish us. I know nothing in gymnastics, that displays equal elegance: and it excites such divine pleasure in the mind of the performer, that I would recommend it as the most efficacious remedy to the misanthrope and hypochondriac.

Pure air, piercing, bracing cold, promotion of the circulation of the different fluids, muscular exertion, the exercise of such various skilful movements, and unalloyed mental satisfaction, must have a powerful influence, not only on the corporal frame of man, but on his mind likewise. To this every male and female skater will assent. Frank wishes, that skating were introduced into universal practice, as he knows no kind of motion more beneficial to the human body, or more capable of strengthening it. ‘The dutch ladies,’ he adds,

adds, ‘ have energy enough to brave the frost with agile foot, while our tender things are knotting in close rooms by the fireside.’ Campé particularly recommends it, in the following words. ‘ I know not a more pleasant, or more beneficial exercise; and every child of eight or ten years old, boy or girl, may and *ought* to learn it.’ Yet half our youths hardly know even what skating is.

This exercise has been considered as hazardous, because it exposes to falls: but I am persuaded, that it is less dangerous than many others; than riding for example; for a man fares much better, when he depends on his own dexterity alone, than when he has to contend with the strength and humours of a vicious animal. I have personally had a great deal of experience in the practice of both these exercises; and, notwithstanding I did not learn skating till late in life, never found myself in danger from this, though my life has been risked more than once from the other. More than forty boys and young persons have been taught to skate under my inspection, yet I never saw any accident happen to one of the number. While learning, they have had several falls, as I had myself: this is unavoidable; but then they soon acquired the art of falling,

falling, or of carrying themselves so as to come down without injury, when they found they could not keep their feet. The breaking of the ice, and danger of drowning, have nothing to do with the exercise itself, but are consequences of the extremely defective attention we pay to youth.

The acquisition of this art is by no means difficult to those, who begin at an early age. All that is necessary is, to see, that the skates are well made; to take care, that they are fastened as securely to the feet as possible, in the most commodious manner, without pinching them; and diligently to inculcate the grand, indispensable rule for beginners, *always to incline the body forwards*, that the skater may not fall on his back. With this rule the learner may be left to his own dexterity; every thing else he will find out of himself, with very little instruction.

If we did not manage our children, so wretchedly in the cradle, and when they learn to walk, as is almost universally done; but allowed them the free use of their limbs, even while at the breast, they would prove very different creatures, with respect to bodily qualifications. I have such a boy before me, who, before he was a twelvemonth old, ran about

on

on the pavement in the court; and who, in his seventh year, was an adept at all gymnastic exercises, in proportion to his bigness, almost without the trouble of learning. This boy had almost learned to skate in the course of an hour after he began. I know two others, whom I must exclude from this exercise, or they would fracture their skulls in twenty minutes. These children have been brought up in the careful, effeminate, hypochondriacal manner.

Grown persons, who possess no degree of activity, will do well to practice skating at first with a chair, till the muscles of the legs have acquired sufficient strength to support them on two slender irons without twisting the ankle.

H. BALANCING EXTRANEous BODIES. This is a very amusing and beneficial exercise. To prevent the object from falling we spring to the left, to the right, backwards, and forwards, and bend the body in a thousand different ways, with a promptitude scarcely any time other way to be acquired. At the same time the accuracy of the eye is exercised; caution and attention are excited. We have no need to call in professors of the art, to instruct us in dangerous modes of exercising: we are not ambitious

ambitious of dislocating our jaws, or displacing our teeth. All that we require is very simple. To support a twelve foot staff, made heavier at the top than the bottom by means of a round piece of wood, or some other matter, in a perpendicular position, upon the hand, upon the finger, and shift it from one finger to another, is sufficient for us at first. With this the balancer stands still, walks, runs, sits down, and rises up, while he endeavours to preserve it from falling by a thousand variations of attitude. A contest arises, who shall carry it farthest, run with it fastest, balance it longest without stirring the feet, or sit down and rise up with it oftenest.

By and by, to increase the difficulty of this exercise, which gives rise to various graceful movements, we take another staff of the same length. This the balancer holds horizontally in one hand. At the farther end of it is a hollow, and in this he places the end of the former staff, which he balances perpendicularly, while he carries it gradually farther and farther from him, by stretching out the horizontal staff, till he holds it extended to its utmost length. This exercise is so well calculated to keep the body in uninterrupted activity,

activity, that I cannot too strongly recommend it.

For this exercise an open spot of plain ground must be selected, and the bystanders must keep at a due distance from the balancer.

CHAP. VIII.

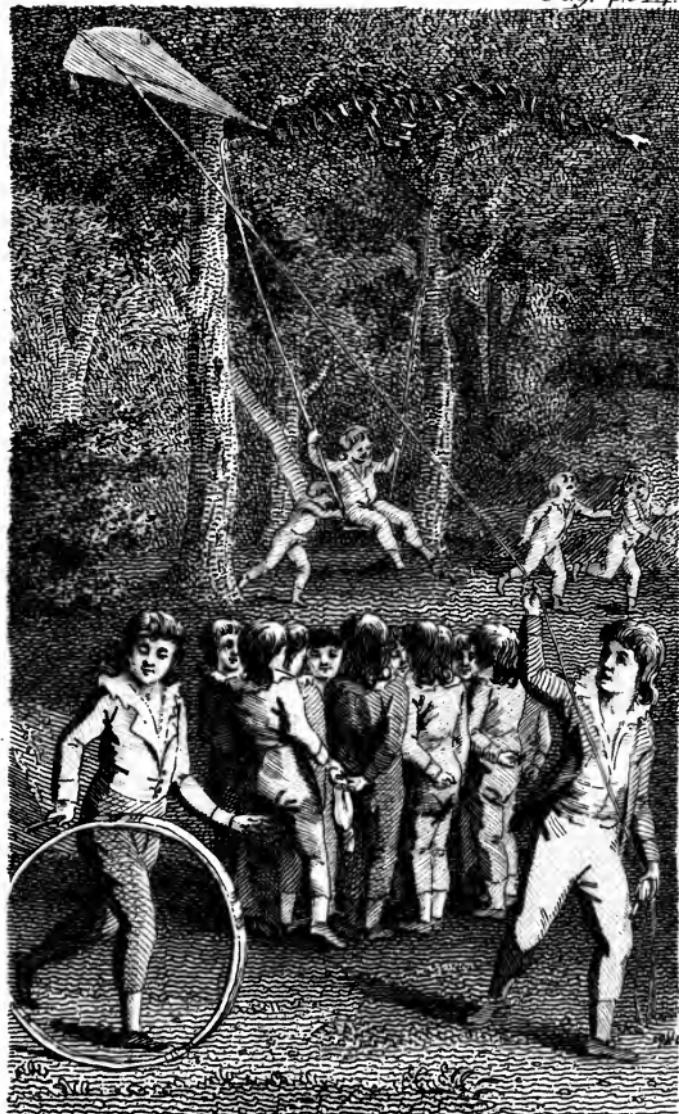
LIFTING AND CARRYING; TRIAL OF THE BACK;
DRAWING; AND SKIPPING WITH THE ROPE OR
HOOP.

I AM far from wishing, to impose heavy burdens on growing children: their bony frame is yet soft and tender, and ought not, therefore, to be oppressed. While we spare the young beast of burden, would it not be barbarous, to load our own youth in such a manner, as might not merely check their growth, but be injurious to it? This I premise, to guard against misconception.

If we would strengthen the muscles of the hands, arms, shoulders, and breast, without rendering the vertebræ of the back, and the bones of the foot, leg, and thigh stiff, we must not set burdens to be carried on the back or shoulders, but in the hands alone, with the arms partly or completely extended: that is, the burden must be lifted or carried in such a manner, as to act chiefly on those muscles, not on these bones. This may be performed without any injury: that must not be attempted without great prudence and caution.

The

Pl. 9. p. 314.



Trundling a Hoop &c.

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The following exercises, I believe, are perfectly suitable to our purpose.

a. *Lifting.* To lift a weight with extended arms, a staff six feet long, such as is delineated in Pl. I, fig. 10, is very commodious. The part to be grasped by the hand, a b, is six inches in length: the rest, from b to c, is divided by notches at regular intervals. The moveable weight d will be greater or less to the lifter, according to the distance at which it is placed from the hand. There should be two such instruments, that in general both arms may be exercised at once. The person lifting is to stand upright, with his breast projecting forward; hold one of the instruments in each hand, with a straight arm; raise them slowly, both together, a little above the horizontal line; and let them down again in the same manner. In the repetition of this exercise, the weight is to be moved farther and farther toward c, as long as the strength of the arms will admit.

This instrument has not the exactness of the steelyard, it must be confessed; and this it would be difficult to give it, because the fulerum must vary in some degree with the size of the hand that holds it; yet it serves extremely well, to show the progressive strength of the arm, if the notches be numbered, and

the master note down the notch, at which each individual is capable of lifting the weight. Among those who can lift equal weights, it may be made a matter of contest, who shall support a given weight longest.

I have found, that persons by no means robust, if not to be called feeble, have in time acquired strength to lift a weight, that would foil a more muscular arm. The utility of this exercise, therefore, is unquestionable.

The ancients were not strangers to this practice, for which they made use of leaden weights *.

b. *Carrying.* I have already mentioned the conditions, under which I recommend carrying burdens. We first choose such, as can do us no injury, if we let them fall. Bags of sand, of different sizes, the weights of which are ascertained, are extremely convenient. To the bag a strap is fastened; one end to the bottom, the other to the mouth; for the convenience of holding it. The person, who is to carry the burden, lifts his

* I find it mentioned in Galen, *de Sanitate tuenda*, Lib. II, cap. 9. — *siquis summis manibus, utraque seorsum apprehenso pondere (cujusmodi sunt qui in palæstra balteres dicuntur) porrectis his, aut in sublime erectis, eodem habitu perficit.*

open hands, with the palms upward, as high as his shoulders, and a bag is hung on each hand, for him to support there, or carry forward. If there be bags enough, several may take them at the same time, and try who can hold them longest, or carry them farthest.

Children and young persons, who have high shoulders and short necks, should carry in their hands burdens of more or less weight for a certain time every day with their arms hanging down. Perhaps there is no mode of correcting these defects equally advantageous.

c. *Trial of the back.* I have yet mentioned no kind of exercise particularly calculated for the spine and muscles of the back, except in p. 283, where I speak of crossing the legs over a horizontal rope. It might have been expected in the preceding article; but I have already given my reasons, why I do not wish young persons often to carry burdens on their back *. To supply this defect, I shall here propose a new exercise.

* Mad. Genlis made her pupils carry burdens on their back, in a dosser, or basket secured by straps passing over the shoulders and under the arms. See *Lessons of a Governess*. Such an exercise, in my opinion, must be beneficial; and in no way injurious, if the weight be no more, than may be carried with facility. T.

The persians had public buildings for bodily exercises, which they called *surchæne* (houses of strength), in which great and small, rich and poor, pursued them systematically. One of their exercises was the following. The whole company placed themselves in a row, on their hands and feet, extending these as far from each other as possible, but without suffering their bellies to touch the ground. In this position every one, without moving his hands or feet, described a circle with his head twice, and then the diameter of one. This exercised the muscles of the neck, and served to mark the time, it being performed to music. The oftener a person could do this, the greater he was esteemed in his art. Many could repeat it sixty times*. The following exercise, framed after this, I can recommend from experience.

The young company stand in a row. At a signal from the master, all set their hands to the ground, and extend their legs as far backward as they can. The whole body, from head to foot, must form as straight a line as possible,

* Niebuhr, in his 'Travels,' Vol. II, describes several persian exercises very circumstantially.

the back being stiff, and the knee not in the least bent. The feet rest on the points of the toes. In this situation they contend who shall remain longest, and he that holds out to the last is victor.

This exercise will require more exertion, if instead of remaining still, the performer describe with his hands the periphery of a circle of which his feet form the central point. To move round in this circle ten or fifteen times following, is doing a great deal. As a variation the hands may sometimes be made the centre, while the feet describe the circle. In both these the pupils should be exercised separately at first, till they have learned to keep the proper position: afterwards several may perform it together, being placed at a due distance from each other.

Delicate children should not continue this exercise too long at a time: a trembling of the thighs and knees should be a signal, for the master to direct them to desist.

d. *Drawing.* The rope, that we have already used for climbing, may be of good service to us in drawing: but it must be strong, adequate to the purpose, and of sufficient length. The master divides his pupils into

two parties. He knows how to manage this so, that the strength of one shall be apportioned to that of the other: and he takes care, that the place of contest shall be perfectly level, for the least declivity in the ground affects the power of both parties. Each party having taken it's end of the rope, and all being in a proper position for drawing, the master gives the signal for beginning the harmless contest by 'one, two, three!' Immediately every limb is exerted: feet, knees, legs, arms, hands, back, and shoulders. At length the point is decided, and one party has drawn the other along.

Sometimes, by way of change, the contest may take place between two only: and in this case each will exert himself to the utmost, as the disgrace of defeat must fall on himself alone, and cannot be charged on the weakness or defective exertion of his comrades.

I have said above, that the rope must be long; and this is indispensably necessary, where several must stand behind one another, for they should have sufficient room, not to be in danger of treading on each other's feet, which they are very liable to do at this exercise.

This exercise was very common among the greeks, under the name of *διελκυσινδα*, both in
and

and out of the palaestra*. Their ἐλκυστίδα was different. For this a post as high as a man's head was fixed in the ground, with a hole in the upper end of it, through which a rope passed. Two boys took hold of this rope, one at either end, standing with their backs toward each other, and each endeavoured to draw his antagonist up †.

In lifting, carrying, and drawing, it is to be observed, that the legs must be kept close together as far as is practicable, that is, they must never be separated sideways, and the mouth must be shut.

e. *Skipping with a rope or a hoop.* It is advantageous, frequently to have obstacles to overcome, in performing things that are easy in themselves. By this we promote expertness in acting and presence of mind, or patience and firmness of action, which are objects of no small importance in education. The exercises here mentioned are nothing more than running and leaping with additional obstacles. Gentle running is not difficult of itself: but we require, that a cord, held in both hands,

* See Meursius de Ludis Græcorum, & Pollux, lib. IX, cap. 7.

† See Meursius as above, and Eustathius in Iliad. 9.

be thrown over the head and under the feet at every second step; thus it becomes necessary, to keep time in moving the feet, and the arms likewise are thrown into regular motion. Or it is required, to skip over a long rope, swung round regularly by two other persons. Leaping is performed in a similar manner. We will now proceed to explain the particular exercises.

a. Skipping in the long rope. For this we use the same rope as served us before for climbing: though perhaps one somewhat less would be as well. It is put in motion by two persons. *A* stands facing the master, *B*, four, six or ten paces distant. *A* holds one end of the rope in his hand; the master, the other. The rope hangs between them, so that it nearly touches the ground in the middle. Each moves his hand in a small circle, so as to give the bow, or catenary curve, formed by the rope, a circular motion. When the rope is swung in this manner, if, while the master stands with his face to the south, the rope move in the direction of the Sun, the pupils stand to the right of the master, opposite the centre of the rope, so that each forms an isosceles triangle with him and *A*. From this point they are to run singly, or in pairs, between

between *A* and *B*, without suffering themselves to be touched by the rope; and running every other turn of the rope, till they are all through.

The same motion of the rope still continuing, they have now to return, but this can be accomplished only by leaping over the rope, just as it comes near the ground. This is more difficult, demands a little resolution, and requires the leap to be nicely timed; but is soon learned with a little practice. Only two at most must be allowed to go over at once; otherwise the curve of the rope must be greatly lengthened, which renders swinging it too laborious. If any one should be caught by the rope, the master will let go his end, that he may not be thrown down.

A third branch of this exercise is performed in the following manner. *C* places himself in the middle, between *A* and *B*, while the rope is held still. *A* and *B* swing it over his head, and when it approaches the ground he leaps up, to let it pass under his feet. This he continues to do, as long as he is able: when he is tired, he calls out ‘halt!’ and the master lets go his end of the rope. Two may perform this exercise at once. A contest will naturally arise, who shall continue it longest;

longest; and it will require considerable exertion to leap over the rope a hundred times *. The master will take care, that his pupils carry themselves gracefully. The hands should rest on the sides, the head be held up, the breast kept out, and the heels touch the ground after every leap, if the rope be not moved with velocity. If the exercise be performed with great quickness, the feet should rest only on the toes, which should scarcely rise a hand's breadth from the ground, the knees should be kept straight, and the rope should be fwung in a short curve. The inexpert will find it not amiss to wear boots.

The difficulty of the last performance may be increased by not allowing C to take his

* A boy of mine, five years and a half old, who had acquired considerable expertnes at skipping in the short rope during the winter, began exercising with the long rope on the 15th of february. One end of the rope was fastened to the arm of a chair, while I held the other and fwung it. Nearly an hour a day was devoted to this practice, he and his two brothers leaping over it alternately; and on the 20th he leaped over it a hundred and forty one times, taking a short leap in every interval. One of his brothers, two years younger, who had never skipped in any rope before, leaped over it in the same manner twenty eight times. In the september following the eldest of these boys leaped over 347 times, the next 199, and the youngest 78. T.

place while the rope is still, but making him run in while it is swinging, and get out again, when he is tired, in the same manner. Both these require quickness, and attention to the right point of time.

c. *Skipping with the short rope* is pretty generally known, and therefore needs no long description. The person intending to perform this exercise holds the two ends of a cord, one in each hand, and lets the middle part hang in a curve. All that is necessary for him is, to take care that this curve be justly proportioned to his size: if, while he stands on the middle of the cord, his hands, holding the ends, are as high as the hip joints, the measure will be tolerably just. Letting the rope hang down, he steps over to begin his run, swings it over his head, and passes it under his feet every third step. When the greater part of the pupils have acquired a certain degree of dexterity at this exercise, they may be drawn up in a line, at proper intervals, set off together at the word of command, and strive who shall advance farthest.

This exercise may be performed too without moving from the spot, and with many variations. The performer may skip, that is raise his feet from the ground alternately, passing

both over the rope each turn; or hop, keeping one foot constantly in the air, and passing the rope under the other every time he hops, or every other time: or leap, passing the rope in the same manner. A common, but not very easy feat is, to pass the rope twice under the feet during one leap, and some will do it even three times. Sometimes boys step over the rope with each foot alternately, one foot only being on the ground at a time, and the other remaining in the air, till it is its turn to step over the rope: this they call *climbing the ladder*. Sometimes they take a flight hop, after the step, so that each foot alternately strikes the ground twice after the rope has passed it, the exercise in other respects resembling the last: this is called *ringing the bells*. At other times, while skipping, the rope is swung at intervals once or oftener on either side of the performer, instead of under his feet, and then under his feet again as before: to this they give the name of winding the jack. Two or even three boys may skip in one short rope at the same time. If two skip only, they may stand back to back, or face to face, with the back of one to the face of the other. Whether two or three skip at once, the rope should be swung by the tallest, and

if

if three skip, he should be in the middle. It is necessary, at this sport, that they take care, not to tread on each other's feet; and that the rope be somewhat longer than for a single boy *. In all these exercises the rope may be swung either forward or backward.

y. Skipping with the hoop. This exercise resembles the last in every respect, except that a hoop is used instead of a cord, either in it's proper form of a complete circle, or cut open so that the performer may hold one end in each hand. I need say nothing, therefore, on this subject, beside mentioning two little feats peculiar to the hoop, which are amusing, and require some dexterity. In one the performer takes a whole hoop in each hand; leaps up, and swings the right hoop under his feet; he then leaps again, withdraws the right hoop; and instantly swings the left under his feet: thus he continues, at every leap withdrawing one hoop, and swinging the other into it's place. To perform this with quickness requires great activity. Sometimes both hoops are brought under the feet at once, so as to cross

* I have seen the three boys, mentioned in the preceding note, perform this repeatedly two at a time, and sometimes all three at once.

each other ; and in the same manner removed both together. To perform the other, two boys, A and B, take a larger hoop, which they hold perpendicularly before them. A, standing to the right of B, holds it with his right hand ; B, with his left. Thus they set off running, keeping exact time with their steps, and at every sixth or tenth step both leap through the hoop together, and return to their former position by turning the hand round the hoop. This exercise tends to render boys active, and is excellent for creating an appetite.

f. *Trundling a hoop* is a pleasing incentive to running, but is adapted only to a spacious level ground. The hoop is rolled forward like a wheel, and the object is, to keep it in motion, without suffering it to fall. This is accomplished by means of a short stick held in the hand, with which it is impelled forward, and occasionally supported by a slight touch on either side, to which the hoop may incline. With the same stick its direction is altered while running, by gently striking it a little before the perpendicular diameter on the side opposite to that, to which you wish to turn it. They who are become adepts in this exercise vary it by different little feats : such as throwing

ing it into the air by means of the stick while running, and keeping it on its course after it comes to the ground; or running through it while it is in motion, sometimes to the right, at other times to the left, giving it a stroke in the mean time, that it may not stop.

This is a classical exercise, and was common to the greeks and romans, as it still is in many countries. The greeks called it *κρικηλασία*. The hoop was as high as the breast of the person who used it, and in the inside were fastened rings, or little plates of tin or brass, as is now done in many places, to make a jingling noise. Hence Martial calls it *gar-rulus annulus*. Probably the hoop itself was iron, as the rod employed in trundling it was made of iron, and furnished with a wooden handle *.

* Mercurialis de Arte gymnastica, lib. III, cap. 8:
Meursius de Ludis Græcorum.

CHAP. IX.

DANCING, WALKING, AND MILITARY EXERCISES.

a. *Dancing* is an exercise strongly deserving recommendation, as it tends to unite gracefulness and regularity of motion with strength and agility. It must consequently have a place in a treatise on gymnastics, though I have little more to observe on the subject, than that it is most proper for children, and should give place to other exercises at the commencement of what may be styled youth. A good gymnastic dance for the open air, approaching the heroic ballet, for young men or boys, calculated to exercise their strength and agility, excite innocent mirth and youthful heroism, and cherish their love of their country by the accompaniment of song, is an extremely desirable object, which is still wanting among all our improvements in the art. May some skilful artist take up the idea, and favour us with a patriotic dance for our British youth!

b. *Walking*. We speak not here of the measured dancing master's step, but of a natural, unconstrained gait, which well deserves a little of our care. As the character of a nation is often displayed in external modes of

action, particularly in it's peculiar mode of walking; so from the walk of individuals we may frequently infer their way of thinking and acting. Hence it follows, that every one walks according to his natural disposition: but as this natural disposition is susceptible of improvement, there is no reason why we should not improve the external habits, in which it is displayed. Besides, young persons generally form themselves by imitation of some particular person, in whom they fancy excellence, though the peculiarities, with which they are struck, may most probably be defects: and generally in this point we are either too negligent, or stupify our young pupils with our rules and directions. The consequences of both these modes of proceeding are unquestionably disadvantageous.

The art of dancing may contribute greatly to a graceful demeanour; but if it's measured steps and regular carriage be adopted in our habitual movements and attitudes, we shall announce more pedantry than taste. An easy display of strength and suppleness in all our gestures, without the least appearance of art or constraint, is most to be admired. A light, yet firm and manly step; an upright posture of the body, particularly of the head, breast,

and shoulders, yet totally devoid of stiffness; an easy, natural movement of the arms; are what we should chiefly strive to attain. These, however, are not so completely within the sphere of the dancing master, as is generally supposed, but depend in great measure on the early management of children. If we deny the tender infant the free use of his limbs, and afterwards debilitate him by effeminate treatment, we cannot expect strength or suppleness in his movements. Leave the limbs of the infant more at liberty; let him learn to walk naturally; then let him exercise his tender joints in the open air, first on the soft sod, afterwards on the harder ground, and lastly on uneven places; let him take short walks, and bring him by degrees to longer excursions, first on plain, then on hilly ground: here let him learn to surmount all kinds of irregularities, by placing his feet in a proper manner, and to acquire a command over his unpractised limbs: and these preparatory steps in early childhood will lay the foundation of such strength and suppleness, as no dancing-master ever produced by all his steps and turns.

A sense of honour is capable of effecting much among young people, particularly when
the

the praise or blame comes from their equals : it would not be amiss, therefore, occasionally to introduce the following exercises. The master lets one, two, or three of his scholars at a time, walk in different directions ; first from the rest of the company, who act the part of spectators and judges, then toward them, and lastly across them ; now slowly, now moderately fast, then very quick. By these variations the walk of each is exhibited in a conspicuous light. Let each of the company then point out the faults he has observed in the performers ; and as boys have a very just taste in this respect, and are quick at discerning any thing the least ridiculous, no fault will easily pass undetected. When this criticism has been made, let the performance be repeated : in general it will be immediately improved, and thus in time every fault will be corrected. Military exercises, likewise, will contribute much to it ; and to these we now proceed.

c. *Military exercises.* In important matters, where the head and heart are concerned, youth should be led by reason and argument, that they may learn to employ their reason in affairs of the head and heart, when their education is at an end : but in trifles, such as

relate to mere mechanical action, it may be of advantage, to teach them to obey command, that they may learn subordination, without which society is a chaos, where one is continually running his head against another's.

The soldier, in performing his exercise, exhibits a perfect pattern of subordination, and of a quick and exact execution of orders, that is highly astonishing. I am persualed, that it would be very beneficial, to introduce these into the daily management of youth; and that a well conducted military establishment is desirable in schools, and in large families, where there is no end to jumping, running, screaming, forgetting things that are necessary, carelefsness and disorder with regard to articles of dress, &c. It is a pleasing spectacle, when children and youths fly to their place at the word of command, arrange themselves in order, assume a good attitude, and march in a regular body wherever you direct it; and when they are accustomed to perform at command things of frequent occurrence, which are commonly accompanied with noise, bustle, and confusion, while all are running headlong together. To him, who has daily to do with a great many young persons,

persons, what I have said will be perfectly intelligible.

Another motive, that induces me to recommend military exercises, is altogether gymnastic. This is the improvement of the carriage. Infinite numbers of young people are extremely careless and indolent with regard to gait and attitude. As a remedy for this, military exercises, and particularly the various evolutions, that are connected with determinate positions of the body, are strongly to be recommended ; and they are very agreeable to youth, provided, of course, we do not treat them as slaves, and drill them with the cane.

It will readily be conceded also, that young people cannot be too early inured to difficulties, to teach them patience, and harden them for a future period. For this purpose long marches of some miles are excellent ; and if the road be barren of natural objects, or a speedy progress be desired, the regular military pace is extremely convenient.

The three different grounds here adduced render it necessary, to practice various marchings and evolutions, in which boys will take much delight ; and when once they have acquired a certain dexterity in the practice, they

will come of themselves, and request their leader to march with them.

Beside all these, military exercises are well calculated, to animate the courage of youth, to fortify their naturally bold, enterprising spirit, and to harden them against bodily pain, which the effeminacy of our common mode of living renders highly necessary. All exercises, which have this tendency, if they be not in other respects injurious, merit our regard: and if the refined and fashionable world give them the epithet of rude, let us consider, to what point fashion and refinement have brought, and will bring us; and how they have crippled all our ardour for the duties of a christian and a man, when it should be displayed in energy of action, and magnanimous self denial.

Our young company divides itself into two parties, representing hostile armies. Their weapons are such as will inflict pain, without doing injury, being sticks of a moderate size. Their heads and faces being protected by helmets *, they proceed to battle. A part of the wood,

* These may be procured at a trifling expense. The boys can make them themselves of strong pasteboard, or millboard.

or a hill of sand in our place of exercise, is occupied by one party: and this the other endeavours to gain. All follow their leader. If no advantage can be obtained by artifice, a formal attack commences, and a contest ensues for the possession of the ground *. This is a very good play for the night, to familiarize boys with objects in darkness and obscurity. In winter snowballs may take the place of sticks. A spacious plain being chosen for the field of battle, each army endeavours by marching and countermarching, to gain the advantage of the wind, the sun, or the ground, which in a deep snow requires some exertion; and as this is combined with throwing and avoiding the balls thrown, it exercises the strength of the arms, shoulders, and breast, the swiftness of the foot, the flexibility of the body, and the accuracy of the eye.

* As a preparatory to this, I would recommend the boys to learn the use of the broadsword, which is an extremely useful and elegant gymnastic exercise. In certain parts of England playing at backsword, or singlestick as it is sometimes called, is in common use as a public game at wakes and fairs. Strength, vigilance, activity, and fortitude, are improved by it; and skill in it may enable a man to defend himself against the attack of a ruffian.

This

This exercise is best adapted to the commencement of a thaw. There is a time, when snow by pressure becomes a ball of ice, and when consequently it would be dangerous.





Bathing & Swimming

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CHAP. X.

BATHING AND SWIMMING.

WERE I to collect all the encomiums on bathing, that have been published by writers on physic, philosophy, and education, I should fill a considerable volume. It is remarkable, that all, without exception, recommend it; but more singular, that little or no attention is paid to it almost every where. The experience of ages has taught us, that the cold bath is astonishingly conducive to health; the example of the ancients, who had a bath in almost every house, or at least frequented the public baths; the religious use of the bath among the jews and mohammedans, an use founded on sound policy; the practice of our ancestors, who rendered their newborn infants hardy by plunging them into the cold brook; the almost universal habit of bathing in rude and half civilized nations, to whom we are far inferiour in bodily strength and health; and the concordant testimonies of ancient and modern physicians in recommendation of the bath; all should excite us, to pursue the beneficial practice. But unfortunately

nately our prejudices have almost established it as a law of decorum, to refrain from bathing, because, as we have no public buildings for the purpose, the bather must strip himself in the open air: unless at a few places of public resort, where it is tolerated for it's medicinal uses, yet of which scarcely any but the wealthy and idle can avail themselves. Thus we carry about us all our lives a coat of dirt, the very idea of which is sufficient to excite disgust, and, in the words of Frank, from which, as from the annual circles of a tree, a man's age might be told.

Is not this universal want of cleanliness, with regard to all parts, that are not immediately exposed to view, intolerable? Does it appear credible, that it should exist in a civilized nation, where it is deemed a disgrace to wear dirty clothes? Surely, to cover with clean garments the filth, which adheres to the whole surface of the body, displays little of the true spirit of cleanliness.

Unzer says of people, who indulge in dirt out of affectation, that they deserve to be treated as objects of general contempt. In my opinion, the general custom of leaving the greater part of the body unwashed from the cradle to the grave merits it in an equal degree,

degree. At least let us not divulge this to the unpolished inhabitants of the Pelew islands, who every morning, at sunrise, lave their bodies in that element, which was not formed for the fish alone; for they would despise us.

Another consequence of neglect of bathing is, that it affects the health, which cannot be preserved without perfect cleanliness. Our body, while we are in health, is constantly perspiring a viscous fluid, which adheres to the skin, and, on those parts that are uncovered, unites with the dust and dirt floating in the air, so as to begrime the face, neck, and hands. Hence we are obliged frequently to wash these parts. But those parts of the body, which are covered, commonly perspire most; our clothes cannot entirely keep off the dust, which gradually insinuates itself through and between them; and besides, from the continual motion and friction, to which our clothes are exposed, fine particles are ever wearing off from them, and increase the quantity of dust, that unites with the perspirable fluid, and thus forms a crust over the whole body. Thus washing the covered parts is at least equally necessary; and the most commodious way of doing this is the bath.

We

We need insist on nothing more, than the obstruction of perspiration, necessarily consequent to a neglect of this. Every one knows the bad effects of this obstruction; colds, coughs, tooth-ach, head-ach, rheumatic pains, fore-throat, inflammation of the eyes, cutaneous diseases of different kinds, &c. We are now accustomed to these complaints, and fancy they are incident to our nature; while scarcely any one thinks of ascribing them to that want of cleanliness, which generally prevails, and to which, in great measure at least, they are owing. It is indeed clear, that many of our diseases arise from our neglect of cleaning the skin, and the obstruction of perspiration thence ensuing: consequently a considerable portion of human misery might be prevented, were the practice of bathing introduced into private families, and encouraged by public accommodations.

When an individual has apparently lost his life by drowning, intense cold, or noxious vapour, we think highly of his restoration, and not without reason. Institutions for the recovery of such of our unfortunate fellow-creatures are established in various places, and instructions for the purpose are liberally dispersed.

perfected. Let us then act consistently. Surely to secure the health of millions is of far greater importance, than to recall to life a few individuals, to some of whom the boon may be little worth acceptance.

For my part, I consider the cold bath as an essential object in a good physical education; and a bathing place, as an indispensable appendage to a public school. A particular building, for the purpose, however, is unnecessary: a safe, retired spot appears to me sufficient. Were children permitted to bathe in such a place under proper inspection, they would have no temptation, to evade the father's eye, and fill the mother's heart with alarm. How many promising youths are annually lost to their country, merely from the want of such institutions!

No doubt I shall have many ready to start objections here: such as, bathing is not every where practicable, because water is wanting: who will take upon himself the charge of superintendance? who will defray the expense of bathing dresses? These and similar objections only show, that men do not take up the matter in earnest, and consider education properly so called, as far as tuition is out of

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the question, with an indifference little to their honour.

The advantage, which youth would derive from the cold bath, is not difficult to comprehend. I say expressly the cold bath : for I would not employ for the purpose the water warmed by the sun of a summer afternoon, but the much cooler stream of the early morning. This braces every muscle, and every nerve ; imparts to the body a powerful capacity of supporting cold ; steels the skin, on the tensity or laxness of which so much depends, against the influence of the air, and renders it fit for the exercise of its natural function, perspiration ; refreshes the whole system ; gives alertness to the body, and animation to the spirits ; and is particularly serviceable for cooling the blood in the heat of summer.

Still there may be timid parents, who will be apprehensive of colds, coughs, and other diseases, from the cold bath. To these I shall offer the result of my own experience. I have now for several years seen about thirty young persons in the habit of bathing, not in summer merely, but through the whole of autumn, till winter ; in the most sultry weather, in showers of rain, and on cold days, when the ground

ground was covered thick with rime and the puddles of water were frozen over; once indeed a little before Christmas, on a sudden thaw, in a pond where the ice was an inch thick, through which the bathers broke a hole in the middle with a large stick, while what remained around it was strong enough to bear them, and another time in a deep collection of snow-water, both at their urgent intreaty *. Brought up myself too tenderly, and not early emancipated from the prejudices thus imbibed, I have paid strict attention to the subject; and to the question, ‘is such a practice free from danger?’ Experience has uniformly answered me, with very few modifications, ‘it is not only free from danger, but beneficial to the health.’ So far from either cold, or cough, or any other disorder ensuing from it; I have found, that those, who adopted this powerful preservative of health, scarcely knew the meaning of catching cold, which most people dread like the plague.

Among us germans, or rather among us polished europeans, instances of this kind are

* This very day, the 19th of february, 1799, there are four boys bathing themselves in a pond of snowwater, in a field behind my house, which last week was covered with skaters. T.

very rare. We hear with astonishment of the Russian, who runs reeking from his stove, to bathe himself in the snow, and ascribe this to his hard and savage nature. But to be healthy, is not to be savage; and health is far more to be prized, than all effeminate refinement, than all the polish of taste. Of memorable examples I shall quote just one more.

On the 8th of August, 1791, a little girl was born at Schnepfenthal. Her father named her Thusnelda Gertrude. She was a lively little thing. When she was six or seven days old, he bathed her in a cold spring, and repeated this every second or third day. Before this she had constantly respired the pure and cool air, often been exposed to it naked, and frequently washed with cold water. From the first the child regarded it but little; for the feeling of infants is not very acute, and still less unstrung to nervous debility; though she cried sometimes. By degrees, however, it became so habitual, that she seldom uttered a single cry. The weather grew cold, winter came, and the water was often covered with ice; yet Thusnelda bore it very well. In the mean time she was often carried out half or quite naked, in wind, and rain, and snow. Pardon me, tender mothers, ever in

anxiety

anxiety for your darlings, if I here set before you an example, which has the appearance of being borrowed from the true ancient germans, and is so diametrically opposite to your principles of physical education. Thusnelda enjoyed such uninterrupted plenitude of health, and such strength of body, as I scarcely ever observed in a child of her age. Often have I thought, as I beheld her, our sturdy forefathers were in the right, to bring up their children hardily ; for, according to all appearance, hardy treatment is the only true way to health.

Accordingly, we choose a convenient place in the neighbouring river, for ponds are not so agreeable. The banks are skreened by bushes. The depth, with which we are well acquainted, is not too great, yet sufficient to admit of diving ; and the current is gentle. The bank is perpendicular, and a few feet high, so as to afford a commodious situation for leaping into the water. We undress ourselves singly behind the bushes, and put on a pair of linen drawers, reaching only halfway down the thigh. We are not afraid of disordering our hair, for it is merely combed in the simplest manner. The following rules are

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deduced from my own experience with young persons.

1. A gradual progress should be observed. Beginners should be first taken to bathe in the latter part of a hot summer afternoon, because the water is then warmest. But don't forget.

2. The best time for bathing is the morning; very early, if possible; but on no account just after a meal. Two and three hours afterwards.

3. The master will never suffer his pupils to go into the water when they are hot, but takes care, that they suffer themselves to grow cool first. This he can ascertain by examining their armpits.

4. It is most eligible, to leap into the water, and plunge the whole body under it instantly. They who cannot do this, may throw the water over their head with both hands. Diving, however, requires but little previous exercise; merely that of dipping the head frequently, and then crawling along under the water. When a person has acquired a facility at this, he will soon be able to move himself under water at pleasure, and in a very little time will learn to leap into the water head foremost, and dart away like a fish.

5. Five or ten minutes are sufficient to refresh the body, and strengthen the nerves.

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A pair of woisted gloves, or a piece of flannel, should be used to rub the skin, which will then be cleaned and invigorated.

6. I do not think it necessary to refrain from bathing on account of a cold, or cough; but such a case will seldom occur, for young persons, who are in the habit of using the cold bath, seldom know any thing of these complaints, if their way of life be in other respects answerable to this practice*.

7. Every person, who bathes, should wipe himself dry as soon as he gets out of the water, and dress himself speedily. A little exercise after it is beneficial: if the bathing place be a quarter of an hour's walk from the house, the returning home is sufficient.

These few simple rules, according to my experience, are quite sufficient.

But the summer passes away, and autumn arrives. No matter: time and practice create habit. I have adduced instances above, and I can engage, that any boy, even though of a delicate constitution, will not only be able to persevere without difficulty, if he bathe con-

* I can aver, that I have often found washing the whole of the upper part of the body, neck, arms, and shoulders, with very cold water, of excellent use in catarrhal complaints, and have cured a hoarseness by this method.

stantly every two or three days, but will find it conduce greatly to fortify his health, and strengthen his body.

For such of my readers, as are convinced of the salubrity of this physical treatment, I do not mean to exclude the winter. I am persuaded, that we may bathe in the open air at all seasons *: but I would not require too much. May all parents have this regard for the health of their children, to let them bathe at least once every week: water and a bathing tub cost much less, than the medicine that will be saved in general by the practice,

In all wellregulated societies, bathing houses, for the sake of health and cleanliness, are indispensable in every town, and every village. A clean, firm, undebilitated skin, is requisite to health; and this is best preserved by bathing. How desirable then must it be to the poor and labouring class, to have it in their power, to frequent a cold bath at little cost, or, which is still better, at the public expense!

* Poor jewesses, who cannot afford a bath in their own houses, break the ice to get into a pond or a river, and return home through frost and snow, without injury.

From bathing to swimming the transition is easy. Our pupils shall be kept diligently to their bathing, that they may learn to swim in the mean time. To be able to preserve the life of a fellow creature is surely a matter of exquisite delight: but what avail injunctions, excitements, or public rewards, for rescuing a man from a watery grave; or what the strong impulse of our own humanity; when we are obliged to run about in quest of that assistance, which we do not possess in our own faculties? Nay, if it were possible, that we could regard our own safety alone, the utility of the art is too obvious, to need farther recommendation.

The athenians, when they would express the idea of a man's knowing nothing, and being fit for nothing, used to say, that he could neither read nor swim. All beasts can swim: therefore swimming is no art, but a natural faculty of the animal body, which the creator bestowed on it, because he knew it must be perpetually exposed to the danger of falling into an element so generally abundant. Man only, or rather the polished european, cannot; partly because it never enters into his mind to attempt it, partly because the natural faculty is more or less destroyed by the phy-

fical treatment of his youth. This is a serious charge, because it includes with the annihilation of this faculty a number of diseases of the thorax, by which multitudes are sent to the grave.

Scarcely is the infant come into the world, when his chest is compressed. This vile fashion does not cease here; our usual dress, fastened across the breast, is a continuation of it. In this do we not act diametrically opposite to Nature? She would have our body obey its innate propensity to enlarge: but we confine it by our clothing. The breastbone and ribs are at first mere cartilages, and should extend with the growth: the increasing lungs should contribute to this by the act of respiration, enlarge the cavities of the thorax, and assist in forming that beautiful arched chest, which is commonly observed in strong persons. But this we counteract, and acquire a form very different from that of the son of Nature. The diminution of the chest in consequence is the occasion of many diseases of the thorax, as well as of greater difficulty in acquiring the art of swimming. Practice must supply what we have lost, and to this I now proceed.

I cannot here omit the testimony of Dr. Franklin, who was an excellent swimmer;

as it is given in the words of Campe. ‘Nothing, in fact,’ says the latter, ‘can be easier than learning to swim. Little more is necessary, than the persuasion, that you can swim if you will. This I was taught by the celebrated Franklin, see his letters, when I was six and thirty years old. On his authority I made the trial, and succeeded. He says, “All men can swim, as well as all beasts: nothing more is requisite, than to have the courage to put yourself into a proper position, and make the same motions with your hands and feet as you see the frogs. But this courage you will not have, till you have found by experience, that you can keep yourself afloat in this manner. To make this experiment, walk into the water, where it deepens gradually, till you are up to your middle, and turn about your face to the shore. In this situation, you will not be afraid to throw yourself forwards, and imitate the known motions of swimming, because you are certain, that you can soon reach the ground, and raise yourself up whenever you please. Thus you will soon find, that water has the power of supporting you: you repeat the trial, and every time your confidence increases: you gradually venture farther and farther

farther from the shore, and thus the swimmer is formed."

For my part, I was taught to swim by Christian Augustus Wolf, of Halle, who travels about as a professor of the art, and shall deliver what I learned from him, and our practice here.

1. The learner should be accustomed frequently to plunge the whole of his head under water. At first this gives a kind of stunning sensation; for which reason it is very necessary, to be perfectly familiarized to it, as in first learning to swim it will unavoidably occur. But it should be carried farther: the learner should try to swim under water, and keep himself under as long as possible *. With this

view

* This I can strongly recommend from my own experience: and I will add, that when once a person can move his limbs with facility, slowly and regularly, under the water, which requires nothing but coolness and resolution, all that is necessary for him is, to hold his head back, so as to bring his face nearly perpendicular to the horizon, and, in striking his hands forward, to carry them as near as may be to the surface, without raising them out of the water; when he will find, that he can swim. At first, it is true, he will be able to swim perhaps but a very little way: but let him not be discouraged at this; all unusual motions are at first difficult and laborious, but practice soon

renders

view I have found it very advantageous, to draw as much air into the lungs as possible immediately before diving, and let it out again slowly under water.

2. If the water reach a little above the hips, it is deep enough for swimming. The whole of the place intended for bathing should be accurately examined; and it would not be amiss, to drive in stakes as a warning against the deeper places,

3. It is likewise necessary, to have a guide, who, if he cannot swim, is not afraid of the water, and may support beginners with his hand, placing it under their belly opposite the short ribs, that they may learn to move their legs and arms without fear of sinking.

4. When the learner has acquired some expertness at this, and the guide feels, that he bears less upon his hand, a cord should be

renders them easy. Most beginners exhaust themselves by striking very quickly, in order to prevent their sinking: but let them confide in the buoyancy of the water, of which they may easily be convinced by their own experience, and by reflection on its specific gravity, which is in general somewhat more than that of their own bodies; and remember, that the more slowly they move their limbs, the less they will fatigue them, and the less liable they will be to move them improperly. T.

fastened

fastened to a belt passing round his body at the armpits, and while the guide has hold of the end of this, he should go on till the water is up to his neck, or even till he is out of his depth. Here he will exert his powers, and commonly learn to swim in a short time. I have seen ten or a dozen boys, who had practised swimming with the support of the guide's hand for some months, or even years, to no purpose, who were thus rendered swimmers in a few lessons.

5. In swimming on the belly the body lies in an inclined position, the feet being deepest, and the head being thrown back, so that the chin is above the water, while the eyes look forward along its surface, not down into it. Neither the hands nor feet should come out of the water. The fingers and thumb of each hand being close together, and the elbows bent, the two thumbs should be brought into contact, or the hands laid one upon the other, and thus, keeping the surfaces in a horizontal position, they should be thrust forward as near the surface of the water as possible, till the arms are extended in a straight line. At this point the hands should be turned so as to be nearly perpendicular to the plane of the horizon, the thumbs being downward,

ward, and the fingers being very slightly bent so as for the inside of the hand to form a trifling hollow; and in this manner they should be moved in a curve first outwards and then backwards. While the hands are pushed forwards, the heels are to be drawn up toward the buttocks, either keeping them close together, or which is the practice of the best swimmers, crossing the legs at the small; and while the hands are moving outwards and backwards, the feet should be moved outwards and backwards likewise, the soles pushing against the water, till the legs are brought close together in an extended position, which finishes the stroke. The same proceeding is to be repeated, as often as you please; taking care, that the hands and feet move regularly, slowly, and at the same time: by the first their effect will be more uniform; by the second, less fatiguing; and by the third, more forcible.

6. In swimming on the back likewise the body is in a slightly inclined position, the feet being lower than the head, and the face alone being above the water. The arms being laid along close by the sides, to increase the surface of the body, the knees are to be drawn up till they make a right angle with the

the body, keeping them close together so that they will appear above the water. This is the preparation for the stroke, which is to be given by separating them from each other, and pushing against the water with the soles of the feet, in the same manner as in swimming upon the belly.

This mode of swimming is very commodious when the swimmer begins to be fatigued, as the arms are perfectly at rest, and a considerable interval may be allowed between the strokes with the feet, as the body remains suspended in this posture for some time, the feet sinking very gradually.

If you want to rest the legs, you may keep yourself afloat, by lying on the back as nearly as possible in a horizontal position, and moving the hands on each side in very short but pretty quick strokes, holding them in the same position as when you swim on the belly.

If a person should be seized with the cramp in the leg while swimming, Dr. Franklin recommends, while thus lying on the back, to lift the leg out of the water, and give it a sudden, vigorous, and violent jerk in the air.

Treading water, as it is called, is another mode of resting. To perform this, the swimmer suffers his feet to sink till his whole body

body is in an erect position, and then he raises his feet a little way and depresses them alternately, as a man does when he sets any machinery in motion by means of two treadles, at the same time moving his hands up and down in a similar manner just before him, the elbows being bent.

When a person is tolerably expert at swimming, it will be highly advisable for him, to practice occasionally with all his clothes on, as he will most probably be in this situation, if at any time he should fall into the water by accident. My teacher never swims without a linen jacket, and long trowsers; and he assures me, that he can swim in his great coat and boots.

Young persons, after they are capable of swimming, should practice leaping into the water from considerable heights, since this may be useful to them in various cases. In this no farther instructions are necessary, than to begin with little heights, take care not to fall on the belly, and, if you leap in head foremost, to protect the forehead from the stroke of the water with one hand *. It is safest

* If the two hands be joined, and held just above the fore part of the head, this I should think unnecessary. It is

safest likewise to keep the legs close together.

is requisite, however, that the water should be of a sufficient depth, proportionable to the height from which you leap. I remember when a youth, on leaping from a bridge into a river about eight or nine feet deep, I struck the crown of my head a smart blow against a broad stone at the bottom; this, had the place from which I leaped been higher, or had the stone been pointed instead of flat, might have been attended with serious consequences. Perhaps the best way of leaping into the water, on several accounts, if the height be at all considerable, is with the feet foremost, taking particular care, to keep the legs close, and folding the arms across the breast. T.

CHAP. XI.

OF SOME OTHER EXERCISES, THAT OUGHT NOT
TO BE WHOLLY FORGOTTEN IN EDUCATION.

WE do not always find things go on smoothly through the whole course of our lives : people are daily exposed to dangers and inconveniences, to which we pay so little attention in education, as if we thought our children exempt from them. Our education is calculated more for the parlour, for a quiet, still, inactive life, than for living among things as they really are, which requires energy, exertion, presence of mind, and not unfrequent sacrifices of our own ease or convenience.

Youth is the golden age of life : let us not embitter it by severity ; yet let us remember, that youth will not last for ever, and prepare our pupils for the change. The parent, who feels a tender affection for his children, should not be misled by it, to treat them with imprudence. At an early period he should make them acquainted with the dangers, that threaten us, and ask them, how they would ward them off, or how they would extricate themselves. He should not content himself with this : he should give them practical in-

B b structions,

structions, and teach his children to act, as if the danger or inconvenience were really present.

Instructions of this kind appear to me of great importance, as they concern our own preservation. We would not therefore by any means neglect, even at the expense of a little learning, to acquire a habit of presence of mind on the occurrence of unexpected accidents, and a knowledge of the best mode of acting in them.

At the alarm of fire we start from our sleep, tremble with fear, and know not what we shall do. At the fire of Gera, a wealthy man snatched up his backgammon-table in a fright, and left all his money behind him. Our children stand crying in their shirts, for they have no idea of what is passing, or what they ought to do. The only way of preventing all this is, to anticipate such a danger, lay down a proper plan of proceeding, and frequently act it over, as if it really happened. A cautious parent, therefore, will often converse with his children on this fearful event, render it familiar to their minds, instruct them what first they ought to do, how to provide for their own security, what they should endeavour to save, and the like, according to the local circumstances

cumstances of his house and family, and the imminence of the danger.

But verbal instructions are not sufficient, the business requires active practice. Accordingly, I would sometimes rouse my children from their sleep at midnight, and let them perform every thing, that they must do in case of a real fire. This may seem hard; but is it not in reality affectionate care? Can it be expected, that children should act properly in such an emergency, unless they be in some degree prepared for it?

In one house, which was on fire, I saw the master leap out of the garret window, by which he ruined his health for the remainder of his life; his wife, who was pregnant, killed herself by the fall; his servant and child were both burned to death: and this in a place wellprovided with active firemen. Should not this be a warning to us, not to depend wholly on the assistance of others, but to prepare ourselves as much as possible against such a misfortune?

It is not sufficient, to teach children how they should act in case of fire, and to carry youth to see houses in flames, if opportunity offer, that they may have a more lively idea of such an event; they should be fami-

iliarized with the terrible element, that too frequently destroys both dwellings and their inhabitants, and taught to rush through it unhurt. How many persons suffer themselves to be miserably burned to death, because they want courage to dart boldly through flames, which are as permeable as the air itself, instead of possessing the solidity of a brick wall! That this is practicable we ought to know from the common tricks boys play at bonfires*. There is a school, at which the following exercise is practised. A long line of straw is placed on the ground, narrow at the beginning, and gradually widening to the end, so that the flames, where the line is largest, ascend as high as a man's head. The straw being set on fire, youths and boys jump over it as speedily as possible, backward and forward; under careful inspection of course. Whoever has practised this exercise a few times in his youth, will not be afraid, I imagine, to rush out of a house through a burning door-way.

* The following passage in Frontinus's *Stratagems*, lib. 5, § 27, is also to the purpose. ‘Hanno, ab hostibus clausus, locum eruptioni maxime aptum aggestis levibus materialiis incendit; tum hoste ad cæteros exitus custodiendos evocato, milites per ipsam flammam eduxit, admonitos ora scutis, crura veste tegere.’

I am a strenuous advocate for allowing children a due portion of sleep, as it is requisite to their growth: but I am of opinion at the same time, that we ought to accustom them to watching; and deem it proper therefore, that, when the body has attained a considerable degree of strength, as at the age of twelve or fourteen, they should be occasionally exercised in keeping awake, that they might not become slaves to sleep: for times may come, when they may find it necessary to refrain from rest.

The same doctrine is applicable to eating. The stomach and palate rule the world. It would certainly be advantageous to our children, to emancipate them from the despotic sway of these tyrants; which may be effected, by gradually teaching them, to subject their appetites to their reason. Occasionally I see a whole school, with their master at their head, make a common cause against appetite, and cheerfully content themselves with a piece of dry bread, relinquishing their usual dinner*.

* The advantages of temperance, and indifference about viands, are eminently displayed in the life of Dr. Franklin; a man, whose example cannot be too strongly recommended as a pattern for youth. T.

But I am now stepping into the confines
of moral education, and must therefore
break off.

CHAP. XII.

READING ALOUD, AND DECLAIMING.

IT is justly expected from every author, that he write with grammatical accuracy; and there are several literary societies in Europe, whose object is the purity of their written language. With regard to pronunciation however, and the management of the voice in speaking or declaiming, objects of high importance, as they are not of mere private concern, but, in the case of public speakers, have considerable influence on the welfare of whole communities and nations, they are commonly left to the industry of the individuals themselves, and we think we have done enough, if we see, that our children are not tonguetied, when they come into the world.

This negligence is inexcusable. Hence it is, that we scarcely find one person in ten, who has a regular, just, and pleasing enunciation. Stammering, lisping, speaking thick, pausing to take breath at improper places; inability of pronouncing certain letters, such as the r, the omission of which is too common in

many places ; omitting the h before many words, and aspirating others which begin with a simple vowel ; employing w for v, and v for w ; drawling, singing, speaking in a key different from that which is natural to the speaker's voice, &c. ; appear to me to grow daily more common. We need not wonder at this, for speaking is learned entirely by imitation, and faults are too apt to be imitated, because negligence requires less exertion, than perfectly accurate articulation, with attention to the proper accent and emphasis. There is not one part of England, where the people at large do not display peculiar faults in their dialect, and from these the metropolis is very far from being exempt.

Another fault, that appears to me of equal importance, is weakness of the lungs. How many of our clergy deliver sermons, excellent in style and composition, in such a weak voice, that few of the congregation can understand them ; or with such unimpassioned monotony, that their effect is lost ! The source of this fault is chiefly in the physical education of children * : we are continually pro-

* What was said in the chapter on swimming may be recollected here.

hibiting our children from speaking loud in the house, because fashion brands it with the name of rudeness ; and we neglect to exercise and improve their chest and lungs.

The only general remedy for this is *reading aloud and declaiming in the open air*. On a sultry day, we wish to refrain from violent bodily exertion, yet would not doze away our valuable moments ; these then are our resource. A shady spot in our place of exercise is appropriated to this purpose ; and here we take our seats. These are at one end of a walk a hundred and fifty paces long, every ten paces marked by a post, or a stone, so as to give fifteen different stations for the reader. The master provides a good and entertaining book ; perhaps travels, an oration, a poem, or a play, according as he wishes to exercise the reader in narrative, declamation, verse, or dialogue.

The exercise commences. The reader repairs to the first, second, third, or some other station, according to the strength his organs have acquired by practice, and the calmness of the weather. All the rest are attentive, to detect faults in his pronunciation, or delivery. When the reader has finished a period, he stops. If the audience have not heard it plainly, they all cry out : ‘ indistinct !

'indistinct! unintelligible!' He must then exalt his voice, or take a nearer station. If, on the contrary, his delivery be just and clear, they will applaud him by clapping their hands. If his voice be louder than is necessary for the distance he has chosen, they will make signs to him, to take a remoter station.

If it be possible, to render the organs of speech more perfect, and strengthen the lungs, by means of exercise, this is certainly the way. Here is no assistance to be derived from the walls of a room; every thing must be effected by the organs themselves: these must be exerted; and the greater the energy employed by them, the more distinctly will each syllable be pronounced: and as attention must be paid to strength and clearness of tone, precipitancy is rendered impracticable. The case is somewhat like that of drawing; the smaller and fainter our outline, the less distinct it is; the stronger and bolder the strokes, the more clearly it strikes the eye.

It is not my place here to give rules for pronunciation and delivery; these I must leave to the teacher, and to the books written expressly on the subject: it is sufficient, that I have noticed the defect, and pointed out the remedy.

CHAP. XIII.

EXERCISE OF THE SENSES.

THE capacity of man for receiving ideas by means of impressions made upon the senses affords an ample and fertile field, hitherto but little cultivated, and that chiefly by accident. I term it ample and fertile, because from it we gather the greater part of our knowledge; and I consider it as left to accident, because we commonly give ourselves no trouble, to cultivate it systematically. How much pains do we take to train a pointer; while, at the same time, instead of endeavouring to improve our own organs of sense, many things we do have a direct tendency to deaden them! That this censure is not more severe than just, I need only appeal, not to the acuteness of the senses of man in a state of nature, but of him who has exercised them in a degree more than ordinary, as is done in many mechanic occupations. The dullness of the senses in many others is so great, that we may almost say, they have eyes and see not, noses and smell not; and their judgments, when they depend on sensations,

sations, are as childish as those of the infant, who stretches out his little hand to take hold of the Moon.

The best preceptors have recommended the exercise of the organs of sense, but they have done it only in general terms, without entering upon particular precepts. Rousseau, from whom much instruction might have been expected on this subject, merely recommends it; saying, to show its importance, ‘if we would learn to think, we must exercise our organs, which are the implements of the understanding;’ and then proceeds to give two or three examples only.

As the subject is difficult from want of experiments upon it, I must request the reader’s indulgence on some of my opinions, particularly as in forming them I have taken no guide. Indeed it is generally more advantageous to the cause of truth, to express our own sentiments, than to repeat those of others. Mine, however, must be considered merely as an attempt. In it three questions come under our consideration.

1. Is an artificial cultivation of the senses practicable? In other words, can the senses be cultivated in a degree more than is common?

2. Is

2. Is it productive of any benefit?
3. In what manner can the senses be cultivated?

Hence this essay divides itself into three parts.

I. ON THE PRACTICABILITY OF CULTIVATING THE SENSES.

The manner, in which impressions made upon the organs of sense convey ideas to the mind, is of no importance in our inquiry. On our coming into the world, either the organs are dull, or the mind is deficient in the faculty of perceiving the impressions they receive. Be this as it may, the sense of feeling appears to be the first, that is excited in us; it is some time perhaps before we acquire that of hearing; and that of smell is probably still later. At first all our senses appear to be very imperfect, and the impressions received by them very obscure. By degrees, as they are more exercised, and acquire more experience, they improve seemingly in proportion. How far this improvement may be carried, is difficult to conjecture. We see daily, that a man, whose occupation has required the exercise of his sight, or of his feeling, in a particular way, has obtained a great superiority over other men in the accuracy

racy of it: and there have been blind men, who, by applying the sense of feeling with attention to that object, have acquired the capacity of distinguishing colours by the touch. The instances, indeed, of those, who have carried one sense to such a degree of perfection, as nearly to supply the place of another they had lost, are too numerous to be related here; yet I must not pass them over, without quoting an example or two.

In Puifaux lived a chemist and musician, who had been born blind. He learned to read by means of letters cut in relief, and taught his son to read also. He estimated his distance from the fire by the degree of heat it gave: and could tell when he came near any thing, by the impression the air made on his face. He could distinguish an open street from one which was not a thoroughfare; his face being sensible to the slightest change in the atmosphere. The weight of a body, or the capacity of a vessel, he could estimate very nicely; his hand being an accurate balance, and infallible measure. He could detect the slightest irregularity in a smooth surface, or variation in the tone of voices. Saunderson, the blind professor of mathematics at Cambridge, had such nice feeling, that by it

it he could detect spurious coins, among any number of genuine ones, though they were executed so nicely, as to deceive the acutest eye. The blind sculptor, too, must not be forgotten, who, after having lost his sight for ten years, modelled the figure of the great duke Cosmo in clay with the utmost accuracy, as he did that of pope Urban the eighth, and that of the duke Bracciani in a dark cellar.

Kersting, who died a few years ago, is a more recent and striking instance. This man, in his youth, was often obliged to go through a dark passage late at night. From fear he often shut his eyes. On this occasion he made a remark, that proved of great importance to him in his subsequent blindness; whenever he came near any solid body, he felt a certain warmth all over him. On this he made a frequent practice of walking with his eyes shut, and uniformly perceived the same sensation on approaching any object. This he carried so far as never to run against any thing. After this he lost both his sight and hearing, when the faculty he had acquired enabled him, to go any where without danger. When blind he not only wrote a treatise on shoeing horses, but carried his sense of feeling

feeling to such a degree of perfection, as to be able to read any book in large print by passing the ends of his fingers over the letters. By way of amusement he cultivated a garden; grafted and budded his fruit-trees; planted his tulips and hyacinth roots; laid his carnations; &c. Every morning he examined his plants and flowers, could distinguish them accurately by his feeling, and knew every eye and bud on his trees. Still his deafness appeared to be a misfortune, for which no remedy could be hoped. One morning, however, his wife lying accidentally with her mouth against his shoulder, while she gave some directions to the maid, who came into the room, he felt a series of strange sensations in his arm. This exciting his attention, he laid his hand on her mouth, while she pronounced all the letters of the alphabet in their order. At each letter he perceived a different sensation, which he carefully noted, finding it always the same at the repetition of the same letter: and by practice he acquired such readiness at distinguishing sounds in this manner, that his wife had nothing to do, but to carry his hand to her mouth, and speak gently, in order to converse with him as readily as when he possessed his hearing. When his wife first

pro-

pronounced the alphabet in this way loudly, as soon as she came to the letter r, he felt as if he should be strangled: his heart was oppressed, he shuddered and trembled in every limb, screamed out with anguish, and said to his wife: ‘my God! what are you doing to me?’ In consequence she ever after avoided this letter as much as possible; and, when it was indispensable, pronounced it as softly as she could. It is said of this man, that, while he was blind and deaf, he was almost always happy and content, extremely cheerful, and extraordinarily clear and luminous in his ideas.

To convince myself of the possibility of cultivating the senses, I have several times exercised several of the pupils of our academy, and received convincing proofs of it. Lastly, that my observations might be more precise, I selected two, W** of Langensalz, and L. von H* of Copenhagen, and exercised them three successive Sundays, an hour or two in the evening each time. From such short trials no wonders are to be expected, but the following journal of what was done will show, that the want of one sense is not absolutely necessary to the improvement of another.

January 27, W** and H*, being completely blindfolded, learned today, 1: to distinguish

C c	gold
-----	------

gold from silver coins with great facility; prussian, from those of Brunswick; new french double louisd'or, from prussian and faxon. Among a number of new double louisd'or, they learned to pick out the faxon, prussian, and french. All this they did readily. 2: to tell with accuracy the number of pieces of gold, as far as 12 or 14 louis, by their weight, they being placed in a pile on the extended fingers. 3: to know the faces of all coins from their reverses very quickly. 4: among several sixpenny pieces to pick out the prussian. 5. to distinguish by the ear all the noises, that were made expressly for the purpose. 6. to write with tolerable quickness, but not very perspicuously.

February 3. 1. They distinguished old french crowns from new by the touch. 2. They told the number of german dollars, laid upon the hand in a pile, as far as thirteen. H*, in particular, was scarcely to be deceived in this point, manage how I would. For instance I laid on two, then three, then six, or two, five, and seven, and he told precisely each time the number on his hand. I then took away or added to the pile on his hand various irregular numbers, and he could always tell exactly how many remained. 3. H* found

the date on a german dollar, but could not tell the year. 4. He distinguished the number 24 on a hessian grosch by the finger. He was directed to point out the reverse: and did so. ‘Is it a head?’ he was asked. ‘No.’ ‘What is it?’ ‘Not a horse.’ ‘What then.’ ‘A cow.’ In fact it was the hessian lion: and I must add, he did not know I had such a grosch, and indeed had never seen one. 5. I took a book, and let each of them feel the thickness of a single leaf, then of five together, then of ten. Thus I furnished them with a standard. I then gave them ten leaves, forty five, twenty, thirty six, a hundred, sixteen, fifty, and so on, between the finger and thumb; and in this way they learned at length to tell the number of leaves pretty accurately, or only with trifling errors extending from two to five leaves. 6. I then put the book into the hand of one of them, and desired him to open it as he pleased himself, and tell the page. This he did many times very exactly, though he had always to multiply by two in his head, and in general with trifling mistakes, not exceeding eight pages.

February 10. Today we could not practice much on account of company: still we did a little. 1. They very readily distinguished

various gold coins, namely prussian, faxon, brunswic, and french louisd'or. 2. The 2d experiment of last sunday with the dollars was repeated. H* told the number several times as far as sixteen, and was scarcely ever mistaken. I often laid them on his hand by gues, without knowing the number myself. Thus I found, that he had not lost the impressions of last sunday. Mr. L* was present, and not a little astonished. 3. The exercizes five and six of last sunday were repeated, first giving the standard again afresh. H* told the page so accurately, that I was surprized; and one of his schoolfellows, who came in, observed, that an indifferent spectator might suspect some deception. Indeed at first I was doubtful myself, and thought he might see through the handkerchief: accordingly, though I considered him as one of the most ingenuous youths in all Denmark, I tied another handkerchief over it; but this made no difference. At different times he told the pages, 70, 84, 60, 88, 38, 68, 104, 116, 56, 84, 76, 84, 86, exactly, and pretty readily. In his other numbers nine times he mistook by a single leaf, nine times by two leaves, five times by four or five, and only twice by nine or ten.

When

When it is considered, that this was done by beginners, after very little practice, it will scarcely be questioned, that the senses are susceptible of cultivation. ‘ What extensive capacities,’ says Herder, ‘ lie hidden in each of the human senses, which necessity, want, and disease, the defect of some other sense, monstrous conformation, or accident, occasionally discloses ! thus giving us room to conjecture, that other senses may be concealed in us, not to be unfolded in this world. If some blind men have raised their sense of feeling or hearing, the memory, or the power of calculation, to a degree that appears fabulous to men of ordinary faculties, undiscovered worlds of variety and perfection may lie asleep in other senses, not yet developed in our complex machine *.’

II. IS THE CULTIVATION OF THE SENSES PRODUCTIVE OF ANY BENEFIT?

Locke has clearly shown, that none of our ideas are innate, but all acquired through the medium of the senses: it can scarcely be questioned, therefore, that the rectitude of a man’s understanding, the quickness of his in-

* Herder’s Philosophy of History, book iv, chap. 3,
P. 86.

tellect, and the soundness of his judgment, must be in proportion to the accuracy of his sences, the facility with which they perform their functions, and the clearness of the perceptions they convey to the mind. If the sences be dull, and the perceptions obscure, to a certain degree, an idiot is formed. This happily is not a frequent occurrence: but if we look abroad into the world, how many shall we find, who judge so erroneously on various occasions, that you would often suppose them in want of common sense! Where this is not the effect of prejudice or passion, it can arise only from dullness of the sences, or the obscurity of the perceptions they convey to the mind. Now, that the sences are capable of improvement, has already been shewn; and if the mind acquire all it's faculties through the medium of the sences, the exercise of the sences must evidently be the direct way, to improve it's capacity; at the same time that it will prove indirectly the means of eradicating our prejudices, and giving reason the superiority over the passions.

Understanding is nothing but the faculty of perceiving things: reason, of tracing causes and effects from a chain of ideas: judgment, of discerning the different properties of things.

It

It is obvious then, that the soundness of our understanding, reason, and judgment, must depend on the clearness and accuracy of our ideas: so that, if we neglect to cultivate our senses, or acquire a habit of indolence in their use, from want of exercising them, those valuable faculties of the mind will become proportionably weak. Nothing deserves so much to be shunned as this habit of indolence, mental and corporal; for nothing has occasioned so much mischief, so much misery, and so much unhappiness in the World. The exercise of our senses, therefore, must be of the highest utility; and certainly it is no small improvement in our system of education, that we begin to instruct children more by imprinting ideas upon their minds through the medium of the senses, instead of filling their heads with empty words, which often convey to them vague, if not erroneous ideas, and thus lay the foundation of many subsequent mistakes in their judgment and conduct.

III. MODE OF CULTIVATING THE SENSES.

The first step to the excitement of an idea is an impression made upon some one of the organs of sense. This impression may be perceived, or it may not be perceived: and, if it be perceived, the perception may be complete,

or incomplete, or erroneous. Thus our attention is called to the truth or falsehood of the perception, it's completeness or incompleteness, and the slumber of the sense.

a. *Of the truth or falsehood, completeness or incompleteness of a perception.*

Errors of the senses arise from various sources.

a. From judging by a *mediate idea* of the object. Impressions are caused by external objects, either through immediate contact, as in the sensations of feeling, smell, and taste; or through mediate contact, as in those of sight, by means of the rays of light, or of hearing, by means of vibrations of the air. If our ear were in a place void of air, it could hear nothing: if our eye be in a place void of light, it can see nothing: and the other senses will perceive nothing, unless some substance come into contact with them*. Thus, then, we have immediate perceptions from the senses, only when some object touches the nerves of feeling, taste, or smell, rays of light enter the eye, or vibrations of the air reach the drum of the ear, and the mind perceives and considers

* The nose does not touch the flower it smells, it is true, but the effluvia, that emanate from the flower, come into contact with our olfactory nerves. T.

the impression. But when from the impression made upon one sense we infer an impression before made upon another, it is not a mere sensitive idea, but partakes of the nature of an abstract idea, and this idea I call *mediate*. For instance, a man lifts a lump of lead weighing a hundred and twelve pounds, and the sense of feeling gives him an *immediate* idea of a hundred weight: but, if he afterwards see a mass of lead of the same shape and size, and say it is a hundred weight, he has not an immediate idea of its weight, but a *mediate* idea, inferred from a previous perception. Or, my dog lies by my side, I see him, I stroke him, and have an immediate idea of him. He runs out, I hear him bark, I judge it is my dog, and the idea of him enters my mind; but this idea is only *mediate*, for I have no *immediate* idea but that of barking. Here then an important question arises: in what cases can our senses furnish us with immediate, in what only with mediate ideas? The nature of the senses themselves is not sufficient, to afford a satisfactory answer to this, without considering at the same time the objects, by which they are affected. The general qualities, by means of which bodies act upon our senses, or the *data*,

by

by which our senses distinguish bodies, are figure, magnitude, gravity, colour, hardness or softness, odour, flavour, and motion in it's most extensive signification, including consequently every species of action. On comparing these with the nature of our senses, we shall instantly perceive, that they cannot all convey immediate ideas to every sense, but only in the following order.

Immediate ideas of

Figure can be imparted by the sight, and touch.

Magnitude - - - - - sight, and touch.

Gravity - - - - - touch.

Colour - - - - - sight.

Hardness or softness - - - - - touch.

Odour, - - - - smell.

Flavour - - taste.

Motion - hearing, sight, and touch.

The following appear on close consideration to be the sources of our mediate ideas.

Mediate ideas of

Figure can be imparted by the hearing.

Magnitude - - - - - hearing.

Gravity - - - - sight, and hearing.

Hardness or softness - sight, and hearing.

Colour - touch?

Odour - - - sight.

Flavour - - - sight.

Motion - smell, and hearing.

Immediate

Immediate ideas are founded on the invariable fidelity of the organs of sense * : mediate ideas, on conclusions formed from antecedent impressions and ideas. If part of these impressions in time be effaced, our judgment, and the idea arising from it, will be erroneous. For example, if the impression of the magnitude of a hundred weight of lead be ever so little effaced, we shall afterwards imagine a larger or smaller lump to be of that weight. We may also be deceived in another way. If we see a hollow mass of lead of the same size, so placed, that the vacuity is not visible to us, we shall judge, that it weighs a hundred and twelve pounds. Hence our mediate ideas are far more liable to error than our immediate; and from the

* As the organs of sense receive impressions from external objects, according to immutable laws of nature, I cannot be persuaded, that they are liable to deception. When the stick, part of which is in the water, part out, appears to us broken, the eye represents the object faithfully, but the mind forms a false conception of it, for want of considering the effect of the medium through which it is seen. The expression, therefore, ‘our senses deceive us,’ is as deficient in philosophical accuracy, as that of ‘the Sun rises.’ It would be more proper to say, ‘we are deceived in our senses,’ when we are speaking of the organs.

preceding

preceding tables it is evident, that the hearing is most exposed to this deception.

c. From the *sphere of action* of the sense and its organ being *too extensive*.

The greater field a sense embraces, the more frequently, of course, it must be exposed to error. If we reckon the different qualities cognizable by the several senses, according to the preceding tables, the different sorts of ideas, on which they are employed, will be found to be as follows.

	immediate ideas;	mediate ideas;	in all.
The sight has	4	4	8
hearing	1	5	6
touch	5	0	5
smell	1	1	2
taste	1	0	1

From these proportions the sight and hearing appear to be oftenest exposed to error; and the same may be inferred from their almost uninterrupted, and in great measure involuntary use.

γ. From the *feebleness of the impression*. Every impression made by an object immediately upon the nerves is more active and effectual, than those in which the object does not operate upon them so directly. The latter

case applies particularly to the senses of hearing and sight. Hence the impressions conveyed by the touch are always more forcible, than those imparted by the eye*: and this is the reason, why the latter are more frequently mistaken by us.

d. From *disease of the organ, or its nerves.* This case is easily conceived. To a short-sighted person every object at a little distance appears obscure. A person, whose nerves are weak, sees two candles, two inkhorns; he wills to take the pen, is deceived, and carries his hand to the image of it. Here we have an error of the sense owing to disease of the nerves.

e. From the *state of the mind.* This state of the mind always has the character of absence: for example, it may consist in want of attention, sleep, profound meditation on some abstract idea, trouble, strong passions, &c. In this case the mind receives the impression only in part, or obscurely, whence the idea of it may very easily be erroneous.

* This is the reason why infants feel, before they hear or see: and if we do not so well understand the impressions made by the touch, the fault is entirely in our neglecting to cultivate this sense.

ζ. From

ζ. From *too violent action of another organ.* Thus extreme pain may overpower the impressions made on some one or other of the senses, so that the ideas arising from them may be false or obscure.

η. From *an imperfect application of the senses.* We acquire knowledge of an object by considering it's different qualities, which require the application of more senses than one. Hence it follows, that we cannot have a perfect idea of a thing, which comes under the cognizance of different senses, if we examine it by one alone.

By these observations from α to η, we are enabled to class the senses according to the degree in which they are liable to err; and from them we may deduce rules, to be observed in the natural exercise of the senses.

1. *Order of the senses with regard to erroneousness.*

The *sight* considers corporeal objects in all their particulars: it embraces figure, magnitude, gravity, colour, matter, and motion: the occasions, therefore, on which it may be exposed to err, are frequent. Add to this, many thousand objects act upon it at the same time: whence an infinite number of impressions are made upon the eye, to which we pay

no heed, or which we see falsely; particularly as most of them act too gently, to excite our attention. As these circumstances do not take place by any means to an equal extent in any other of the senses, there is no one, in which we are liable to be more frequently deceived, than in the sight.

The *hearing* is formed for sounds alone. If these strike our ears in an articulation, with which we are familiar, we understand them, and have immediate ideas actually excited by them: but these ideas are of the sounds only, not of the objects by which they are produced. In this case we are not much exposed to error. But if from these tones we infer figure, magnitude, gravity, matter, and motion; and form our inferences, as is commonly the case, from inarticulate sounds: if we infer the size of a stone from the noise it makes in falling, the figure of a glass from its sound, the matter of a sonorous body from its tone, or the motion or action of a moving substance from the noise it occasions: no sense, the sight excepted, can be more apt to deceive us, than the hearing; for, next to the sight, it is employed on the most particulars, and embraces the greatest number of simultaneous objects; and what is still more, there is

is no sense that gives us so many mediate ideas *.

All the qualities of corporeal substances, flavour, odour, and perhaps colour generally speaking †, excepted, are cognizable by the sense of *feeling*; but with more certainty, because immediately, so that on this account it is less liable to error than the two preceding. Besides, its sphere is more limited; for while the sight embraces objects from the foot of the observer to the stars in the firmament, few of these are within reach of the touch.

These three are termed the nobler senses, because by their means chiefly our minds are enriched with ideas. Hence, too, they more eminently deserve to be cultivated; particularly as we are most exposed to error in their use.

Smell comes next to *feeling*; as, beside examining odour, it endeavours to form conclusions of motion: whence it is more liable to deception than

* For this reason the sense of hearing must be of all most liable to mislead us: though it is possible, that we may be somewhat oftener deceived by the sight, as we more frequently form judgments by this sense. T.

† Blind men, it must be remembered, have distinguished colour by the touch.

The

The *taste*, which is confined to flavour alone, and the sphere of action of which is more limited.

2. *Rules for the natural exercise of the senses.*

aa. Mediate ideas are not adapted to the capacities of very young children, for the conclusions, on which they are founded, must be deduced from numerous observations, which are to be made, and deeply imprinted on the memory, before the conclusions from them can be brought into use. To prepare them for the future, however, they cannot receive too many *immediate ideas*; but this can be effected only by the steady and uninterrupted impression of sensible objects upon the mind. Thus should the seeds of future knowledge be sown: and this will prepare the mind for the reception of abstract ideas. What can be a more delightful occupation for parents? By this you will show more real kindness and true affection for your children, than by overwhelming them with careffes, and loading them with the productions of the toyshop: by this you will benefit them more, than by all the book-learning, which you so early endeavour to drive into their heads. Begin this office when the child is in his cradle: stupify him not

with eternal tossing and dandling : gradually rouse his faculties from their slumber by sensible impressions. Gently rub his limbs, laugh and talk to him, sing to his unpractised ear, show him the light, carry him into the open air, let every thing be life around him, that he may learn to live. When a year has thus passed away, his faculties will be in a considerable degree unfolded, he will creep about upon all fours, and in a little while will run upon the sunny turf. Now let every thing, that the senses can comprehend, be introduced to his notice : let the house, the garden, the court, with the persons and animals around him, be his amusement, he will want few toys beside ; and the fewer he has, the better. Be you his instructors ; converse with him both by words and gestures ; point out to him the several parts of objects, and give them their proper names ; acquaint him with their properties and uses, as occasions offer. Does he not understand you ? No matter : he will learn, and his voice will form itself, first to the pronunciation of one word, then of another ; and thus, inexpressible delight ! he will learn language, and with it real ideas*. I will

* People are too apt to imagine, that infants do not understand words, when they are unable to express them-

boldly

boldly affirm, that a more pleasing and effectual mode of forming the mind does not exist: as I am convinced by my own experience in eleven children, all found in body and mind.

The exercises of the infant are over: the little fellow speaks intelligibly, and with great simplicity, for he understands what he says, and speaks as he thinks. But the employment of his senses proceeds, for this is become his most agreeable amusement. To him every thing in nature is alive; every where wonders present themselves in abundance to his eyes, superiour to the most costly toys. The spider employed on her web, the caterpillar gnawing the leaf, the garden full of plants and insects, the pond with it's aquatic inhabitants, the air with it's birds, the ground with it's minerals, animate and inanimate nature, display an immense field to his senses, and he observes, searches, and discovers novelties on every side. Presently he begins to make experiments; he collects and brings to his father or

selves in them. But very little observation is sufficient, to evince the contrary: and if we consider, when we learn a foreign language, how much readier we can understand it, than express ourselves in it, this will appear very natural. T.

preceptor what he finds: and now instruction begins amid sensible ideas, and scientific knowledge assists the curious little inquirer in his progress, where his sensible ideas are insufficient.

This is the a b c of a sound mind, to be found in no Primer, and to be acquired neither by putting letters together, nor by stuffing the head with unintelligible words, to which the learner annexes no ideas *. Read! learn to read! is the universal cry. This, people think, cannot be begun too early; and when the child has learned to read, he knows not what use to make of his learning: for books are filled with thoughts, but thoughts are unintelligible to him, if they be not founded on the ideas he possesses. ' Ideas, without thoughts,' Kant says somewhere, ' are blind: ' but thoughts without ideas are dumb: they are like nuts without a kernel; like clouds, that elude the grasp. Thus the human intellect first requires ideas, then thoughts. This is the reason, why modern preceptors insist upon conveying instruction through the medium of the senses; and, which is still

* Or, which is still worse, and frequently the case, false ones. T.

more

more to the purpose, why children are greedy of instruction through this medium.

cc. The senses of *sight* and *hearing* are extremely precipitate and comprehensive in their action. Hence arise numerous errors. The eye commonly glances over a thousand objects, as quickly as the lightning's flash, and we see far too much, to perceive anything. For this reason thousands go through life without the spirit of observation, for they are not accustomed, to fix their eye; that is, in reality, they have not the habit of attending to impressions made upon the eye, and thinking upon them. For this there is no remedy; but early exercise on sensible ideas, as I have observed in the preceding section, $\alpha\alpha$, and shall proceed to notice still further in the following, $\gamma\gamma$. I have the proofs of the utility of this before my eyes. I see several boys, educated in this manner, distinguishing themselves by their spirit of observation, and like little spies detecting Nature; for scarcely a movement or an action escapes them, because they were early accustomed, to employ their eyes effectually on sensible objects.

$\gamma\gamma$. The *impressions* made on the organs of sight and hearing may be *faint*, likewise; the grounds of which were noticed above, section

p. 388. You may frequently call a person several times, and he will not hear you; but touch him, and he is sensible of it at once. The fault, of which we are speaking, is not in the organ, but in the impression made on it not being perceived. Nothing can remedy this but attention; and attention must be produced by habit. It is necessary, therefore, early to accustom children, not merely to consider Nature at large, but to explore her in the minutest objects, even those that are scarcely visible to the naked eye. All the three kingdoms of nature afford pleasing opportunities for this. Let not your child consider merely the conspicuous parts of the flower; teach his eye to explore the vessels, scrutinize the structure of the leaves, bark, wood, and various seeds, and examine the organs of fructification with their various parts. Let him likewise discriminate the structure of different kinds of wood, stones, and salts, and distinguish the various parts of insects. Occasionally assist his eye with the magnifying glass, and let him contemplate the circulation of the blood in the frog, the crystallization of salts, the down of the butterfly's wing, animalcules of infusion, &c. Nature is inexhaustible; quitting the microscope, lead

lead the youth again into the fields, and you will find ample scope for exercising his senses. What flower is that, twenty yards off, waving over the brook? What stone is that by it? What insect is that buzzing among the grass? What tree is that yonder, a hundred yards off, a thousand, or more? What is that moving on the side of the hill? is it a man, or some beast? how is he dressed? what is he doing? What kind of corn is that growing in yonder field? What bird sits on that bough? Let his auditory organs be early formed by music and song: let him attend to the difference of sound between carts and waggons empty and laden, the number of horses, the creaking of doors, the voices and tread of persons, the songs and cries of birds, &c. Similar exercises offer themselves to every sense; but I have said enough, to indicate the path to be pursued.

§ 2. On *preserving the organs of sense* found and in health much may be said: but for this reason I must pass it over. Let the physician lend his aid to the preceptor, and let the latter be careful; for with the loss of any one organ a considerable portion of the enjoyment of life vanishes.

εε, ζζ. *Absence of mind* is commonly, if not always, the effect of early education.

Though it is natural for the youthful mind, to be continually craving after sensible ideas, yet, if this craving be once suppressed, it is easy to lead it into the paths of abstraction, and let it find amusement there; or, which is probably more common, inflame the fancy, and employ it on images, where originals are wanting; or, lastly, by benumbing the activity of the senses, throw the mind into a state of vacuity or slumber, which resembles the abstraction of profound thought, if it be not closely considered. With respect to mental disquietude, passions, and the too powerful action of some other organ, which cannot always be avoided, there is an obvious rule; which is, to make children early attentive to these, on every opportunity, that from their own experience they may be accustomed, to distrust the conceptions of their senses under such circumstances.

"n. The perfect *application* of the senses is an object of great importance with respect to sensible ideas, but hitherto much neglected by preceptors. What I understand by this I have already explained above, section n, p. 390, and therefore may be the more brief here. Let it be a rule to the child, to employ every sense, without exception, that is capable of taking

taking cognizance of the object. He should not accustom himself, to employ a *single* sense in preference, and let the others slumber. How can he convince himself, that he has acquired a just idea of a thing by any one sense, unless he proves, corrects, or completes his idea, by some other? Let him examine figure and magnitude, therefore, not by the sight alone, but by the touch also; and to ascertain the qualities of an object, let him employ every sense, that can be a guide to him, at least where it can be done with propriety. When we show the child a flower, it is not sufficient for him to look at it; let him feel it, smell it, and, if it be innoxious, taste it likewise. Let him not know a piece of iron by the eye only; let his hand poise it, his tongue taste it, and his ear hear its sound. The advantages hence arising to accuracy of idea, and consequently of thinking, appear trifling, if we consider single instances only; but when taken at large, the sphere of his knowledge will unquestionably be enlarged and rendered clear in a high degree. Let, therefore, the correction of one sense by another be a prime object with the preceptor, in cultivating the senses of youth. In this, however, a determinate course, and natural method, are necessary.

fary. These will not be difficult to find, if we reflect on what has been already said of the relation of the different senses to the qualities of objects, and the ideas they impart.

As weight and magnitude are relative qualities, no idea can be formed of them but by comparison. The child should be accustomed, therefore, to compare lengths, and breadths, and superficies, and thicknesses; equal bulks of different weights, equal weights of different bulks, and different weights of the same material. He should be led to observe, likewise, the difference, that distance occasions in the appearance of magnitude.

There are only few primary colours; but these are so infinitely diversified by mixture, and so variously modified by the light under which they are seen, that they are extremely puzzling to the sense, and the eye is in nothing so much exposed to err. The seven primary colours, with the addition of white and black, should form a standard for the rest; and we should begin with teaching to distinguish these; first in the usual light of day, and close; then by fainter or stronger light, and at a less or greater distance. We should next proceed to their most easily distinguishable combinations,

binations, and teach the child to compare them with the colours of natural objects.

b. *Slumber of the senses.* If we compare the state of the senses and their organs produced by the common course of education, under ordinary circumstances, with the perfection attained by hundreds of deaf or blind persons, who supply to an astonishing degree the loss of one sense by zealous cultivation of another, we cannot well doubt, that the senses of men in general are suffered to remain in a state of slumber, which, from it's prevalence, escapes our attention, unless we compare it with the greater vivacity displayed in the particular instances alluded to above. Men appear much inclined, to ascribe this greater perfection of some senses to a principle of compensation existing in nature: but on what is this principle founded? Surely not on a miraculous act of nature without our cooperation; but on the diligence and exertion of the person himself, who is desirous of receiving the benefit of this compensation.

I have already hinted at the method of developing the sensitive faculties of children, and as it is founded on the natural operations of the senses, I term it the natural method. I am firmly persuaded, that the understanding may

may be thus improved to a degree of acuteness far above the common: yet, we may venture to conclude from the nature of the perceptive faculty, and our conclusion is supported by the experience of the blind, to whom we have so often alluded, that there is a method of improving this faculty to a far higher degree. This method, as it differs altogether from the natural course, I term the artificial. In the natural method, the most important rule is, in forming an idea of an object, to employ all the senses completely on it: in the artificial, it is precisely the reverse; check the action of the other senses, and employ only that, which you wish particularly to exercise. This rule is founded on the proceeding of those, in whom a sense is wanting. Accordingly, in exercises of this kind, sometimes the eyes should be covered, sometimes the ears prevented as much as possible from hearing, sometimes the rest of the senses kept as free as may be from impressions. When children have acquired considerable readiness by the natural exercise of the senses, in their eighth or tenth year perhaps, I consider it as a very pleasing and useful occupation, to exercise them thus artificially. To some of these artificial exercises I shall now proceed; and to

these

these many others may be added without any difficulty.

a. Exercise of the touch. The much greater promptitude of the sight and hearing evidently leads us, to neglect the sense of feeling greatly; whence I am induced to think, that this deserves our greatest attention. The eyes are to be previously covered; and then let the person so blindfolded, 1st, discover persons by feeling their faces, or their hands. If the company be tolerably numerous, neither of these is very easy. 2dly, distinguish coins. 3dly, tell what a person writes in the palm of his hand with a pencil, or the point of a skewer. 4thly, distinguish the leaves of all kinds of trees and plants, with which he is acquainted. 5thly, estimate the degree of heat of air and water, according to the thermometer. 6thly, distinguish plates of polished metal, of similar figure, by their specific heat. 7thly, estimate the weight of various substances, in pounds, ounces, and smaller weights. 8thly, tell all kinds of wood, and the different productions of the loom. 9thly, estimate the number of leaves in a book, and tell the pages. 10thly, among a number of leaves of the same kind of paper, separate the blank, written, and printed. 11thly, write, 12thly,

12thly, estimate the length of various sticks in feet and inches, the superficies of a table, the solid contents of substances of regular figures, and the capacities of different vessels. 13thly, mould easy figures, mathematical ones for example, in clay or wax, paying attention to the size as well as the form: make pens, and cut things of all sorts. 14thly, distinguish all kinds of substances put into his hand, as chalk, sealing wax, fruits, &c. This admits of great variety. 15thly, let him endeavour to feel inscriptions in relief, as upon large coins. I have had two instances of a boy's finding the 3 on a Weimar threepenny piece, and the 12 on a grosch.

6. *Exercise of the sight.* As the impressions made upon the eye are extremely gentle, and we are frequently making mistakes in them, it is particularly necessary to exercise this sense, for which purpose the following hints may be found useful. 1. Let the pupil distinguish all kinds of distant objects, in the open fields, and through a window. Let him examine carefully every part of a view with his eye, and then, turning his back toward it, describe the whole of what he has seen. Frequently let him confine his examination to a single object, and then confirm the truth of his

his observations, or rectify his mistakes, by a good perspective glass. Let him read out of a book at an unusual distance, or distinguish small objects, as pieces of wood, different kinds of cloth, &c. 2. Let him estimate every relation of magnitude, as it exists in nature; length, breadth, height, depth, superficies, solidity, and distance: both in the great, as yards, furlongs, miles, and in smaller dimensions, as feet, inches, lines. The conjecture should always be verified by actual measurement. This will afford at the same time a pleasing mode of practically acquiring the art of mensuration. On sultry days, for which more violent gymnastic exercises are not so well adapted, I have often had recourse to these, and found, that young persons very soon acquire a considerable readiness in them. It is above all things necessary, to have accurate ideas of the different measures imprinted on their minds as deeply as possible. When this is once done, they will soon learn the art of applying these in all directions, and thus measuring with the eye. Of methods I can say nothing; every one will find them out by his own reflection. 3. Let him draw all kinds of mathematical figures, without compasses or ruler; rectangles, angles of a given

number of degrees, triangles, circles, with their centres: divide lines into a given number of parts: cut measures of feet, inches, and lines, upon sticks: copy mathematical figures in perspective from models, draw schemes for them, cut them in paper, and put them together. All these must be afterwards examined by mathematical instruments, and their errors corrected. 4. Taking for a pattern a picture, in which there are a great many different shades of colour, let him compound every shade in it from the seven primary colours, and lay them all down upon paper from it afterward; or let him merely tell of what colours each shade is composed. 5. Let him estimate the weight of various bodies by looking at them alone. 6. Stopping his ears with his fingers, let him hold a conversation with a person, by observing the motion of his lips.

γ. Exercise of the hearing. Music is obviously one of the most elegant exercises for the ear, and tuning the harpsichord is of all the most excellent. It is to be regretted, however, that it is much too tedious for young persons. The wellknown musical play of commands, in which they are directed what to do by the notes of the harpsichord, is very amusing to

to them; but it is more an exercise of the reflection and invention, than of the sense of hearing. That species of blindman's buff, in which the person blindfolded is to guess whom he has caught by the slightest sound of his voice, is better: but the following exercise is best calculated for the purpose. The youthful company, in which the fewer there are the less noise is to be apprehended, being all blindfolded, their master will do various things, and they must tell what he is about; in other words he will occasion some noise in different ways, and they must explain, whence the noise arises. This admits of great variety. All common actions, as walking, writing, making pens, and the like, are soon discovered; accordingly the master will proceed to such as are more unusual, for instance, stepping up on a chair, sitting down upon the ground, &c. Still this will be found with tolerable facility; and then he will go farther. He will give them to conjecture the figure, size, and substance of things by the ear. For example, what do they hear sound? a glass, a basin, a bell, a piece of iron, steel, copper, silver, wood; the table, the bureau. Of what size, or what shape is it? &c.

§. *Exercise of the smell and taste.* A person blindfolded may distinguish flowers, various articles of food, many metals, leaves of trees, fresh and in many cases dry pieces of wood, and several other substances, by the smell alone, without touching them; and most of them by the taste likewise.

Every one, who has reflected on the functions of the senses, may multiply and refine experiments of this kind in a very extensive degree. Each, however, requires its particular method, to enlarge upon which here would carry me too far, at the same time that it will readily occur to the reflecting mind. One of the most general rules in these artificial exercises of the senses is, to proceed in a method exactly the reverse of the natural; employing first that sense, the impressions of which are the slightest. For example: the person being blindfolded, a piece of paper is the subject of his inquiry. We begin with its qualities. I hold it before his nose, to try whether he can smell it. If he cannot while it is dry, I moisten another piece of the same paper, and then perhaps his nose will be sensible of the odour. If he now say, ‘it is paper;’ I answer, perhaps, ‘do not judge too hastily;’ in order to keep him in a state of uncertainty,

certainty, that his other senses may perform their part. I recommend to him, to appeal to the evidence of his hearing, and pass the point of my finger lightly over the paper, or let it fall gently on the ground. If he say, ‘yes, it is paper;’ I reply, may it not be parchment, or a large dry leaf?’ Thus I render him uncertain again, to excite his attention. I now roll up a small ball of it, moisten it with water, and let him taste it. He will now affirm with more positiveness, that it is paper. I say, ‘make yourself more certain of it,’ and let him feel the paper: on which he is pleased to find, that he did not mistake. I permit him, however, to feel a small part of it only between his finger and thumb, that he may not obtain any knowledge of its size, which is the next object of his inquiry. I let it fall to the ground several times, draw the edges of it between my fingers, and leave him to guess the size of the paper from the sound. In a little practice he will be able to distinguish an octavo leaf from a quarto. I now give him the piece, that he may tell me its size in inches, and describe its figure. He passes his finger carefully round the whole of the edge, and tells me both these. If its figure be such as not to admit of a precise

verbal description, I desire him to retain it accurately in his memory, as I shall require him to delineate it, after his eyes are unbound. I now inquire concerning the colour of the paper. The possibility of acquiring an immediate idea of this by the touch appears to me extremely doubtful: but probably he will infer it from the density of the paper: at least he will be able in time to discover whether it be white, brown, or blotting paper, stained, printed, written upon, or blank. Here the examination ends. I put away the paper; he draws its figure with a pencil, without having seen it; and we now compare the drawing with the paper, and prove the accuracy of the other senses by the eye.

CHAP. XIV.

REVIEW OF GYMNASTIC EXERCISES ACCORDING TO
THE PRINCIPAL PARTS OF THE BODY.

TO point out the particular muscles called into action by each of the exercises I have recommended, might be very well for those, who are skilled in anatomy, but would little suit a popular treatise. I confine myself, therefore, to a classification, which every one may understand, and which the practical teacher of gymnastics will find extremely convenient, or rather absolutely necessary.

1. EXERCISES THAT OPERATE GENERALLY.

The shoulders, chest, back, arms, hands, loins, hips, thighs, knees, and legs, with their muscles and tendons, are exercised in the following species of gymnastics.

Leapfrog, p. 209. The leap in height with a pole, p. 211. The leap from a height with a pole, p. 216. The leap in length with a pole, p. 218. The leap in height and length, or depth and length, with a pole, p. 223. All kinds of wrestling, p. 247 to 263. Climbing up the pole, and the mast, p. 271. Vaulting astride the pole, p. 296. Vaulting up on the

E e 3 pole,

pole, p. 300. Vaulting over the pole, p. 302. Standing up on the pole, p. 298. Gaining the balance, p. 302. Walking in stilts, p. 305. Balancing extraneous bodies, p. 311. Trial of the back, p. 317. Drawing, p. 319. Skipping with the rope, and with the hoop, p. 321. Trundling a hoop, p. 328. Walking, p. 330. Military exercises, p. 333. Swimming, p. 339.

2. EXERCISES FOR THE UPPER PARTS OF THE BODY.

For the shoulders, back, chest, arms, and hands.

Simple throwing, p. 238. Slinging, p. 239. Throwing the dart, p. 240. Shooting with the bow, p. 241. Throwing the discus, p. 243. Wrestling for a stick, p. 263. Suspension by the hands, p. 267. Climbing the ladder, p. 274. Climbing the single rope, p. 275. The fastening yourself to the rope, p. 279. Climbing the oblique rope, p. 282. Climbing the rope-ladder, p. 272. Rising on the hands on the pole, p. 297. Lifting, p. 315. Carrying, p. 316.

3. EXERCISES FOR THE LOWER PARTS OF THE BODY.

Loins, hips, muscles of the belly, thighs, knees, legs, and feet.

Hopping,

Hopping, p. 199. The ballotade, ib.
Hopping on one leg, p. 200. All kinds of leaping, particularly those without a pole, p. 198 to 225. The continued leap, 222.
Running, p. 226. Exercise of the legs and thighs, 269. Standing on one leg, p. 287.
Balancing on the edge of a plank, p. 290.
Walking on a pole, p. 291. Standing up on a pole without the assistance of the hands, p. 298.
See-saw, p. 303. Oval see-saw, p. 304.
Skating, p. 308. Skipping in the long rope, p. 322.

4. EXERCISES, THAT OPERATE MORE FORCIBLY, THOUGH NOT EXCLUSIVELY, ON PARTICULAR PARTS OF THE BODY,

Shoulders.

All kinds of jaculation, p. 237 to 246. The light wrestle, p. 256. Suspension by the hands, p. 267. Climbing the rope-ladder, p. 272. Climbing the ladder without the assistance of the feet, p. 274. Climbing the rope by the hands alone, p. 277. The fastening yourself to the rope, p. 279. Climbing the oblique rope, p. 282. Rising on the hands, and walking with them, p. 297. Lifting, p. 315. Carrying, p. 316. Trial of the back, p. 317. Drawing, p. 319. Swimming,

p. 339. All the kinds of leaping with the pole, p. 211, &c.

Chest.

This part is concerned in all the exercises of the shoulders.

Lungs.

These participate in all the violent exercises, which accelerate the respiration; particularly hopping, p. 199. The ballotade, ib. Hopping upon one leg, p. 200. Running, p. 226. All the kinds of wrestling, p. 247 to 263. Skating, p. 308. The trial of the back, p. 317. Skipping in the long rope, p. 322, with the short rope, p. 325, and with the hoop, 327. Trundling the hoop, p. 328. Swimming, p. 339. Reading aloud, and declaiming, p. 367.

Hands and Arms.

All kinds of leaping with the pole, p. 211, &c. Leapfrog, p. 209. All the kinds of jactulation, p. 237 to 246. All kinds of wrestling, p. 247 to 263. Climbing, p. 267, 270—283. Rising on the hands, p. 297. Lifting, p. 315. Carrying, p. 316. Drawing, p. 319. Swimming, p. 339.

Hands.

Climbing the rope without the assistance of the feet, p. 277. Climbing the rope-ladder,

p. 272. Lifting, p. 315. Drawing, p. 319. Suspension by the hands, p. 267. Wrestling for an apple, or a stick, p. 263.

Spine, and muscles of the back.

The leap from a height, p. 216. The half wrestle, p. 257. Climbing the oblique rope, p. 282. The trial of the back, p. 317.

Hips.

Most particularly in hopping on one leg, p. 200.

Thighs and knees.

Eminently in hopping on one leg, p. 200, more especially with the rope, p. 326. Hopping, p. 199. The ballotade, ib. The continued leap, p. 222. Running, p. 226. Exercise of the legs and thighs, p. 269. Drawing, p. 319.

Legs and feet.

Particularly in hopping, p. 199. The continued leap, p. 222. Running, p. 226. Standing on one leg, p. 287. Drawing, p. 319.

The organs of speech.

Reading aloud and declaiming, p. 367.

The different senses.

Exercise of the senses, p. 371 to 412.

CHAP. XV.

METHOD. EMPLOYMENT OF TIME.

GENERAL RULES.

CHILDREN are naturally active: but it sometimes happens, from an early check put upon this propensity to action, that they become indolent. This commonly arises from the indolence or weakness of those, who have the management of them; from their over-great carefulness of them; or from the circumstances in which they are placed rendering it incommodious, to allow their activity free scope. Whatever be the cause, when indolence, with it's concomitant weakness, is induced, we should endeavour to remove it. Rousseau is wrong in recommending bribes for this purpose: they give the mind a wrong bias, and soon fail of their effect, unless you go on increasing them. The pleasure of exercise is itself a sufficient incentive to exertion, if once you can get a child to taste it: and the best and most natural stimulus to it is example; the example of other children, and the example of his parents, and those about him. Let it be remembered, too, that what is not done with pleasure, will never be done

effectually.

effectually, will never be done well: avoid constraint, therefore; excite, but do not compel.

Beside the incentive of example, we may impress upon the mind of a child the extreme value of activity, health, and hardness of body. Nothing can supply the want of these: neither wealth, nor title, nor honour, nor virtue, can save him from the consequences of bodily weakness, indolence, and effeminacy; which must necessarily lay him at the mercy of others, to whom he must be continually obliged for their assistance, because his body is unable to obey his will: an assistance, often afforded with unwillingness, and procured by purchase, or obtained by flattery.

Ambition is one of the most powerful motives for exciting either the mind or body of children to action. This chains them to their book, when nature would prompt them to be gamboling in the fields; and surely, therefore, it cannot be less efficacious in exciting them to what is more natural, bodily exertion. The ancients rewarded their victors with branches of trees, or crowns made of them: and such are the prizes, to which I have alluded in several of the preceding chapters. He, who has distinguished himself by

by his exertions, obtains a small twig, bearing from three to six leaves, which he wears in his bosom for the day, as a token of his prowess. If one have done some extraordinary feat, which was never performed before, he will be richly rewarded with a slight crown.

But we are not formed for the pursuit of gymnastic exercises alone; the time to be spent in them, therefore, is a proper object of consideration. Let us take Nature for our guide. She gradually prepares the machine, with which the mind is to act; and at first appears to pay her chief regard to the moulding of the body. From this she passes by slow degrees to the understanding; till at length, having brought the body to a certain pitch, she imperceptibly relinquishes her operations upon it, and, leaving it entirely, confines herself wholly to the improvement of the mind. We should pursue her steps; and assist, not thwart her, in her labours. Let the beginning of life, the first six years perhaps, be employed entirely in forming the body, and the organs of sense, as much as possible in the open air, without regard to weather or the seasons. I do not mean, that the child should be suffered to grow up like a wild animal; for his mind may receive considerable instruction through

through the medium of the senses, and from what passes among the persons about him; and in these two ways he may acquire much more knowledge by the end of his sixth year, than a child who had learned to read in his fourth. In his seventh year let him spend an hour every day at his book; in his eighth, two hours; and so on, till in his fifteenth he will have nine hours allotted for study. I may be permitted to give the following sketch, not by way of prescribing precisely how a boy's time should be employed, but as a proof, that children will not want time for exercise to improve the body.

Age.	Hours of sleep.	Waking hours.	Of the latter may be employed.	In study.	Meals, rest, &c.	Corporal exercises.
7	9	15		1	4	10
8	9	15		2	4	9
9	9	15		3	4	8
10	8	16		4	4	8
11	8	16		5	4	7
12	8	16		6	4	6
13	8	16		7	4	5
14	7	17		8	4	5
15	7	17		9	4	4

In this sketch I have had in view a youth destined to the pursuit of science; and I do not

not think such a one should ever employ more than nine hours a day in study, and then he will have four left for gymnastic exercises. Even when he is grown up, whatever be his office, he ought not to have less than three hours a day to employ in bodily exercise. With those who are not to be employed in professional studies, and those who are destined to mechanical occupations, the case is different: such, I think, should not study more than six hours a day after the age of twelve; and should employ six hours in gymnastic exercises, or manual labour.

When describing the different exercises, I have introduced some particular rules, but there are others of more general import, which I have reserved forth is place, to avoid frequent repetition.

1. Gymnastic exercises should never be performed after a meal, till the food is digested. In this all physicians agree. Hippocrates says: ‘labour before meals.’ The remarks of others to the same purpose I need not repeat. The morning, immediately after rising, therefore, appears to be particularly adapted for exercise. By this the body shakes off that listlessness, which it always acquires from the bed, and which otherwise hangs about

about it frequently for hours; the fresh air braces it; and the exertion fatigues it sufficiently, to give it an inclination for fitting to study. We may likewise employ in exercise a portion of time immediately before dinner and before supper; for nothing is better adapted to cleanse the digestive organs, and fit them for the due performance of their functions. It is not to be inferred, from what has been said, that all motion after a meal is injurious: millions go to work immediately after dinner, without suffering any inconvenience from it; and no harm appears to accrue to youths from gentle exercise after meals.

2. No child in health is injured by being overheated, and I never was able to discover the least detriment arising from it: but drinking when extremely hot, or being cooled too quickly, in whatever manner it happens, may prove highly pernicious. It is proper, therefore, to take off the clothes before beginning to exercise, and put them on again immediately after. Lying down upon the cold ground, too, must not be allowed.

3. On commencing any exercise, begin not with its more violent degrees, but with the more gentle: and leave off in the same man-

ner:

ner: bearing in mind, that sudden transitions are always wrong.

4. Never let bodily exertion, or your attempts to harden the frame, be carried to excess: in other words, do not produce insensibility, or exhaust the youthful body, and render it languid. In my opinion, however, I must confess, this caution is unnecessary for the present age.

5. In all exercises attention should be paid to a proper carriage, and such a position of all the parts of the body, that none may be exposed to injury. For example, the tongue must never be suffered to remain between the teeth, the legs must not be separated too far.

6. It is necessary, and very advantageous to the pupils themselves, particularly where they are numerous, to keep up a certain degree of military regularity and obedience to command. Of this I have given instances in the book itself.

7. Distinguish the feeble from the athletic, and measure them not by the same standard. Attempt not to make the weak hardy and strong at once, but take time, and proceed gradually. The best standard for the feeble at first is their own desire, their own inclination, animated by the love of praise.

8. Endeav-

8. Endeavour to make yourself acquainted with the constitutions of your pupils. At least distinguish those who enjoy perfect health, from those who are less healthy. The former may attempt all kinds and degrees of gymnastic exercises without danger: the latter must proceed more cautiously with respect to both. Try these by gradation in every exercise; and observe the effect, that each degree has upon them, both at the present time, and subsequently: thus experience will be your safest guide.

9. Observe what limbs of each young gymnic are the feeblest, and let these be particularly exercised. The left hand and arm are commonly weaker than the right; let them be frequently exercised, therefore, by lifting, carrying, drawing, and supporting the weight of the body by suspension with the left hand, till they become as strong as the other.

10. The gymnast must bear in mind, as much as possible, the degree attained by each of his pupils in every exercise, that he may not set them upon any thing above their ability, by taking too long a step at once. This is a grand rule for avoiding danger.

CHAP. XVI.

MANUAL LABOURS.

' EMILIUS shall learn some trade,' says Rousseau; and all that he says upon the subject may be reduced to this, that it is an estate for life; in other words, a man who possesses a trade, whatever may befall him, will always be able to earn a livelihood. The wealthy, however, have never yet thought it necessary, to follow this precept of Rousseau; and I am acquainted with scarce a single instance, where a person of fortune has suffered his son to learn a trade formally, that his own hands might be able to procure him subsistence in case of need, against which no one can be secure*.

This argument certainly ought to have weight in the present day; and no doubt there are multitudes living, who deeply regret, that themselves or their parents disregarded this advice of Rousseau. But there are still stronger reasons for learning a trade. When the youth has attained a certain age, and begins to be tired of the amusements of

* Consider the case of the french emigrants.
childhood,

childhood, it is proper, that he should labour; it is necessary, that he should be fully occupied. Where now shall we find a resource equal to this? Neither will it be useless to him in his future life, even if it should not be wanting for his support. The domestic man, and domestic life is the life of happiness, often finds occasion for little mechanic operations, and may frequently obtain comfort and convenience, as well as amusement, from the expertness and dexterity of his own hands. The man who in his little, peaceful cottage is a second Robinson Crusoe, if he neglect not the principal business of his life for trifles, is in my eye so much the more amiable a being; his skill is pleasing to his wife and children, and adds another link to the chain of their affection.

There are strong objections, it is true, to learning a trade in the ordinary way: the time required for an apprenticeship, and the company to which a youth is exposed. Both these, however, may be avoided by the man of fortune, who would not wish to make his son a mere mechanic.

The question then is, what trade shall our youth learn? Rousseau bids the youth handle the axe and the saw with nervous arm, hew the

massy beam, and mount the lofty roof. This is excellent in itself, but in our view of things perhaps a little beyond the middle path. Indeed Emilius goes not to the carpenter, but to the cabinet-maker, and thither let us follow him. For my part, I know not any occupation more excellent, or better adapted for our purpose, than that of the cabinet-maker, particularly if that of the turner be united with it. For how many pleasant hours am I indebted to it! Most of our youth are destined for employments, in which the use of the hands is necessary; and in this occupation they will have constant opportunity of improving the strength of their arms, the dexterity of their hands, and the acuteness of the organs of sense.

There is an art intimately connected with this, and well adapted to young men of superior education, that of the harpsichord and pianoforte maker, which, on account of the alterations and improvements of which it is susceptible, is continually affording opportunities of exercising the invention, and thus is an employment for the head as well as the hands.

Beside the advantages hitherto mentioned from the acquisition of some handicraft, we
should

should not forget another important object, that of initiating the youth, whether study be his destination or not, into the mysteries of a science, which is the soul of active common life, the science of *mechanics*. As he must come to act his part on the stage of life, surely it must be of advantage to him, to be acquainted with a science, which has so much influence on its daily occupations, and is so intimately connected with the knowledge of things. This appears to me one of the most inexcusable neglects in the ordinary plan of education; for no one will deny, that the science of mechanics is one of those few, which are indispensable to every one, from the peasant to the peer, either practically, in his actual employments, or theoretically, as an introduction to more extensive knowledge. What may not be expected from a nation, apt for invention from its penetrating mind and persevering spirit, when a theoretical and practical knowledge of mechanics, to which we are indebted for most of our inventions and manufactures, is generally diffused through all its members?

I deem it, therefore, extremely beneficial, first to instruct the youth practically in the art of the cabinet-maker and turner, and thus
to

to familiarize his hand to the mechanical use of tools ; and as soon as this is accomplished, to lead him to the construction of machinery, combining the theory of mechanics with the practice, by employing him in making models of different machines, and at length prompting him to invent new ones himself*.

There are other useful mechanical labours, which might be learned, as those of the book-binder, and basket-maker ; but more particularly that of the gardener, which I would strongly recommend, as well adapted to children. Every boy, where it is practicable, should employ part of his time in this pleasing occupation, which has a valuable tendency to expand the mind. It is a delightful sight, to see youth and innocence attached to nature, and our original destination. Here plans are formed, and a piece of waste ground is gradually dug up, enclosed, planted, watered, and kept in order, by the exercise of juvenile powers : the important ideas of the produc-

* An expert practical man, capable of forming a systematical plan for instructing youth in their mechanical labours, leading them gradually from what is easy to the more difficult, might render considerable service to the world by the publication of a concise treatise on the subject.

tion of something by our own exertion, the value of manual labour, and articles of food, are instilled into the mind; and the disappointment of pleasing hopes compensated by fresh exertions keeps the mind in activity, and teaches it to think lightly of the failure of its expectations.

THE END.

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old white pine tree and galvanized to make
the collector has several hours to run
the water through the pipe and collect samples
of the water from each pipe section to test
for nitrates and other chemicals. The
samples are collected in plastic containers
and sent off to the laboratory for analysis.

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del quale aveva già preso contatto con il suo collega per fare qualche lavoro in comune. Il suo primo obiettivo era stato quello di scoprire se c'era qualcosa che poteva essere fatto per aiutare i suoi colleghi a superare la crisi.

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